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SCIENCE OF STEAM.

By N. P. BURGH, A.I.C.E., M.I.M.E., &c.

London: 80, Cornhill, and of all Booksellers.

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The Report for 1874, copies of which with the statements of account can be obtained on application, shows that a sum equal to 40 per cent. of the premium income was added to the funds, while the general income was increased. 349 policies, averaging £555 each, were issued. The directors continue to make advances to assurers in the office on liberal terms.

VISITS TO THE MANCHESTER EXHIBITIONS—No. IV.

In our last notice on the Manchester Exhibition of Appliances for the Economy of Labour we finished describing the various exhibits which were of special interest to the mining profession in general. Before, however, proceeding to the other Manchester Exhibition we may first offer a few remarks on a coal-ash washing machine exhibited at Cheetham Hill, and constructed by the German Humboldt Engine Works Company (formerly Sievers and Co.), of Kalk, near Deutz, on the Rhine. As the name implies, its object is to wash coal-ashes, and to sift the latter. We need hardly remind the steam user that with our present incomplete furnace combustion most ashes contain more than 50 per cent., and many fully 70 per cent., of good coke and other utilisable refuse which at the present day are allowed to waste; for instance, such cinders can be used up over again in iron and other works, or for house fires, whereas the hard substances found to be contained in the ashes when ground and mixed with other substances make excellent bricks, and can be used in mending roads and streets; or, to quote one further application, the fine refuse ashes can all be made into mortar and cement. Without considering the possibility of the exhaustion of our coal fields, still there can be no doubt that economy of fuel is much to be desired, and ought to be much more extensively practised than it is at the present day. The above remarks will readily show that the object of this coal-ash washing machine is good. The action of the latter is as follows:—The ashes are lifted to the top of the machine by an elevator working an ordinary bucket-chain. The buckets emptying themselves at the top allow the ashes to drop into an inclined screening drum, which is perforated in different sizes on its surfaces, much after the same manner as the screens are in the well-known Blake's machine; the inclination of this drum causes the ashes to travel to the lowest end, and they thus become sorted according to size by falling through the before-mentioned perforation. The largest portions of unburnt coal and clinker fall out at the end of the drum on to the ground, and have to be separated by hand from each other. The droppings through the perforations fall, however, into an ash-washing apparatus, which is kept full of water by a pump actuated by the machine itself. The washing-tub, as it may be called, is fitted with a bottom sieve which receives the droppings, and an up and down motion is imparted to the sieve by the machine. This movement continually forces the water through the falling sieve, causing those articles of lighter specific gravity to work themselves to the top of the droppings, and a few outlets fitted on the sides of the washing-tub carry the top particles into baskets so placed as to receive the outflow. This is a general description of the machine's working action, and although we learn from the Humboldt Engine Works Company that the cost of extracting is only 6d. per ton, with a corresponding selling price of the produce at their works of approximately 3½d. per cwt., still the machine in question absorbs a deal of driving power, which amounts (provided we are correctly informed) to above 5-horse power. We have already referred to one German firm which is trying to introduce their machinery on British soil at this Exhibition, and although less objection may be taken to the design of the former than to that of the latter, yet these exhibits show that not only in beauty of finish, but also in the mechanical design of their machinery, the Germans are far behind us. In fact, we venture to state that not even our worst engineering shop would have allowed a more clumsy designed machine to leave their yard than may be seen by this coal-ash washing-machine. Let those who have the chance examine this machine minutely, especially the crank supports and the pump connecting-rods, and they will find our statements verified to the fullest extent. We doubt our continental friends will not forget to attach great importance to the fact that they are exhibiting German machinery in the very heart of English mechanical ingenuity, and although we are quite willing to welcome them even there, still, as they have chosen to enter the competing ring, we are called upon to judge their machinery just in the same spirit as we should discuss English skill. If, then, our criticism of this German machine has not been as favourable as it might have been, we have pointed out to the exhibitors the direction in which the machine in question may be greatly improved, and this without partiality.

Coming to the Manchester Mechanical and Industrial Exhibition of the Royal Pomona Palace, we find here a much greater space reserved for the display of machinery in motion than might be seen at the other Exhibition. Unquestionably, however, the motive the Society for the Promotion of Scientific Industry had in getting up their Exhibition had been far nobler than the chief object of the Exhibition we are now about to describe, for the former conceived the fundamental idea more of educating the mass, while the latter is without doubt a commercial speculation from beginning to end. Pomona has been the Manchester Cremorne, and with this we have said all that can be argued in its favour as far as its past history is concerned. Its original purpose was consequently one of public entertainment, at a chief entrance fee, and with this facility offered it can be easily understood that the habitual frequenters of this dancing saloon (?) were not of the most *recherché* class of people. Much has, however, been altered, and it would be a serious injustice to its energetic proprietor to say that the present exhibition of machinery there displayed was not of a respectable character; on the contrary, we have not the slightest hesitation in saying that the exhibition of machinery has been placed under the auspices of a most *élite* patronage, and that amongst its supporters a great number of important English machinists are found ranked side by side amongst the exhibits. Spacious sheds have been set apart from the dancing hall, and erected partly for the purpose of holding periodical exhibitions of machinery or animals (cattle, &c.), and partly for the carrying on of the proprietor's private business. Its President is the Lord-Lieutenant of the county, the Right Hon. the Earl of Sefton, and its directing engineer is Mr. W. W. Hulse, M.I.C.E., M.I.M.E. To render the distinction all the more conspicuous between the dancing hall and the newly-erected structures the latter has been termed the Agricultural Hall, and to render it more suitable for the exhibition of machinery in motion the floor of this part has been boarded. Three main shafts drive the whole of the machinery, and the motive power is supplied from one of the bays, by means of two regular working double-flued Galloway boilers, belonging to Mr. Railey, the proprietor. These boilers, which are of the ordinary type, have nothing specially worthy of notice, excepting it be that the two flues of one of these boilers is fitted with Rye's patent self-acting firing machine, or mechanical stoker. In the old hopper two fans were used to one fireplace, but with two-flued boilers this could

not be accomplished, and one fan only threw the coals on one side of the fire. To obviate this with one fan, the makers (Messrs. Woolsthorpes, Rye, and Co., of Oldham) reverse the motion at intervals, firing right and left alternately, and partially burning the smoke. The fan of this apparatus is kept constantly running, while the feeding part is regulated by a steam-gauge, the steam peg not varying above $\frac{1}{2}$ in. the day through. The same regulation closes the damper when the steam is too high. Although the boiler in question has likewise a self-adjusting feed arrangement worked in connection with these hoppers, and by which it is claimed any desired steam pressure may be retained in the boiler, which is done by its actuating the feed according to the steam pressure in the boiler, still it is running idle, and may possibly not have been found to have answered its purpose.

In the same bay with these boilers we find a Howard safety-boiler of 36 pipes and of 55-horse power. This type, as the engineering public is aware, has been introduced in various forms since 1866, but the Barrow Shipbuilding Company claim to have made several improvements on the old construction, which we shall not here repeat, since a paper relating to these improvements was recently read at the annual meeting of the Iron and Steel Institute on May 7 last. We were alluding in our last report to the ignorance that even prevailed amongst engineers on the question of the generating of steam, and as the opportunity is now afforded us of giving a practical illustration of some of the various opinions on this subject we mention the following:—Amongst boiler makers or engine machinists it has now become a custom to circulate facts about steam-boilers, or to give useful (?) information on steam-power. We may, consequently, assume these pamphlets, &c., to be written by fully competent practical men, but notice the diversity of opinion often met with in these pamphlets. You will read in the one that the only reliable way of testing the economical working of a boiler is by weighing the fuel, whereas another pamphlet very properly observes—"coal varies so much in quality that the consumption of a certain weight per horse-power is not sufficient to show the economical results." Or again, you may find on one such circular—"10 lbs. of water evaporated per hour with 1 lb. of coal is exceptionally good work," whereas another such circular will maintain that "the best steam coal is capable of generating sufficient heat to evaporate 15 lbs. of water per 1 lb. properly burnt." The looseness of these statements is self-apparent to every thinking mind, for there is a certain vagueness about the word coal, as it is only by previously determining the chemical composition of the fuel employed that we are enabled to judge of the relative heating value of the coal as compared with that of standard quality. When we consider that the theoretical investigation of Favre Silbermann on the heating qualities of coal have conclusively proved that the combustion of each pound of coal per hour liberates heat enough to develop about 5-horse power, where can we talk now of exceptionally good work being done by our present types of boilers? Evidently these pamphlets are got up either with great ignorance of all their authors' surroundings, or for the purpose of throwing dust into people's eyes to force sales. Be this as it may, we have no time to reveal further discrepancies in these pamphlets. Suffice it to add that we quite agree that when it is remembered upon how many contingencies the security of steam-boilers depends, and, in many cases, how narrow the margin of safety is, the wonder is not that disastrous explosions are frequent, but rather that their number is not indefinitely increased. The system of careful inspection by "boiler insurance companies" has been attended with some good results, yet in spite of the strenuous efforts being made by the promoters of those companies to enforce such inspection by law, few precautionary measures will be found sufficient to ensure perfect safety either in the purchase or working of steam-boilers. Amongst other boiler exhibitors at this Exhibition we may mention the names of the Manchester Sectional Boiler Company and Crosland's Boiler, both of which have now been sufficiently long before the public to render them well known. Passing out of the boiler room, Schiele's fans are here first arranged and shown, as constructed in the latest patent. The general description and arrangement of the common blowing fan applies also to the "Excelsior" compound exhausting fan, but the arrangement of parts is different. At each end of the fan—at its "in-take" or centres—a strong iron air chamber is placed, and furnished with flanges, which are intended to be joined up to pipes of tin, iron, or wood, so as to connect the fan with the place or places from which it is desired to draw. The two inlet boxes may either be joined into one, to exhaust from any given place, or may be used separately, and in different directions, &c. The construction of the air passages are specially made wide and free, so that all dust, fibre, dirt, &c., drawn in may be instantly discharged into the air chamber, which surrounds the vanes, and is carried away with the blast. By these means the makers claim to have removed all objections urged against the employment of fans, said to be due to their liability to choke and foul with heavy matters passing through them. These fans have been made to work under 400° to 500° of heat with the bearings kept perfectly cool, and can be used to blow as well as exhaust, and in some cases the two principles are used at the same time. Schiele's Excelsior noiseless blowing fan is also exhibited by the Union Engineering Company.

The next exhibit which we may notice is C. Henry Hall's patent pulsometer pump, with 9-in. diameter working cylinders, and occupying only 19 by 11½ by 30 in. space, which is guaranteed to deliver 145 imperial gallons per minute. The machine is of American origin, and it is claimed to be peculiarly adapted to pumping water from mines, owing to the entire absence of internal mechanical parts,

securing it from liability to stoppages, or the breaking of machinery, and so preventing wear and derangement of parts by grit, sand, and mud possibly contained in the water. As already stated, the principal characteristic difference which distinguishes this invention from the piston-pump is the total absence of mechanical elements, and a substitution therefor of purely functional conditions, arranged in harmony with the simplest form of apparatus, so utilizing merely the principles of hydro-dynamics. In this pump the steam pressure is brought to bear directly upon the liquid as the forcing element, while the subsequent condensation of the same furnishes the lifting force, whereby the alternate vacuum and pressure within a pair of suitably arranged chambers produces a continuous stream. We hope shortly to bring illustration of this pulsometer pump before the notice of our readers, with a more detailed description of its working action, so that we shall now merely add that these pumps are made up to sizes occupying 74 by 46 by 120 in., and delivering 3250 gallons per minute. They are also adapted to irrigating lands, draining swamps, filling tanks at railroad stations, likewise for paper-mill use, as they will pump pulp as readily as

water, or for other factories, tan-yards, oilworks, wrecking or bilging vessels, and for waterworks, &c.

Korting Brothers likewise exhibit the same class of machinery as at Cheetham Hill, which we may pass over, since we have already described these specialties.

Baker's patent rotary blower is exhibited by the Savile-street Foundry and Engineering Company, and will be duly illustrated by us in one of our future numbers. In drawing attention to this new patent pressure blower, the makers state that in a pressure blower in which the air is forced forward by a revolving vane or piston, the whole of the power applied (except the very slight amount absorbed by the moving parts of the machine) is utilized in producing pressure, and should the outlet from the blower be throttled, the pressure of the blast will continue to rise until the limit of the driving power is reached, when the machine must stop. With a fan, however, the case is widely different; it must be run at a high velocity, probably ten times that of a pressure blower, to impart sufficient momentum to air, a substance possessing only a very slight specific gravity; thus there is a very considerable loss of power from the friction of the bearings when run at such extreme speeds, as well as from the power absorbed in continually changing the direction of the belts, which take short turns round very small pulleys, and after all but a portion of the air thus acted on is really forced forward. Should the outlet from the fan be partially throttled there will only be a slight increase of pressure in the blast while the fan continues to run at the same speed, and if the outlet be entirely closed the fan will still continue running, expending the same power, but producing no practical effect.

Many pressure blowers have within the last few years been submitted to the public, the most successful of which has proved to be the one known as Root's blower, and which is a very excellent machine. Baker's pressure blower was tested in competition with the former by the Committee of the Franklin Institute Exhibition, Philadelphia, in October last year, and the silver medal and diploma were awarded to it by the committee on the ground of superior merit. In this trial the capacity of the two machines was taken from the respective printed circulars, the Root's blower being rated to deliver $13\frac{1}{2}$ cubicfeet per revolution, while the Baker's blower discharged 12 cubic feet per revolution. In order to make both machines equal in discharging, through holes of equal size, the Root machine being run at 182 revolutions per minute, corresponded to 202 revolutions per minute in the Baker blower. At this speed the latter indicated 19 ozs. to 21 ozs., with pulsations of 6 ozs. on the pressure-gauge, thus showing an average of 20 ozs. At the speed of 180 revolutions per minute Baker's machine indicated 18 ozs. very steady, the variations being not now more than $\frac{1}{2}$ oz. in either direction, while the pulsation was about 5 ozs. With this last-mentioned speed Root's blower showed 17 ozs. pressure on the gauge, and at no time reached above 18 ozs., while sometimes falling as low as 15 ozs. The pulsation was so great as to cause the needle of the instrument to become invisible. Running the two machines by the same engine for ten minutes, the Root machine made 1500 revolutions, according to the counter, the power consumed being 8·43-horse power, and the blast pressure was on an average $11\frac{1}{2}$ ozs., standing at times at 12 ozs., and sometimes falling as low as 10 ozs., with an invisible needle caused by the rapidity of the pulsation. On the other hand, Baker's blower registered 1517 revolutions, with an average horse-power consumed of 8·13, while the pressure-gauge recorded 12 ozs. very steady, and the pulsation 5 ozs. From this data the comparative efficiency of the two machines may be seen at a glance to be in favour of the Baker pressure-blower.

The Baker's blower is not only adapted for supplying blast to cupolas and smiths' fires, but it is fitted to be used as a gas exhauster, or for Hargrave's chemical process; for moving hot gases, for which latter purpose it is only necessary to fit it with an arrangement of water bearing for keeping the revolving journals cool, at an extra cost, and which is on the whole but trifling. The blower is also said to be well adapted for the ventilation of mines and ships, and public buildings and tunnels, for the removal of dust from grinding-rooms, for blowing the furnaces of steam-ships, &c., &c. It will be well to remember that in laying down conducting-pipes from the blowers to cupolas or smiths' fires, sill piping or brick flues are never tight, even to the pressure of a fan; they should, therefore, never be used for either fan or blower. With the increased pressure of the blower the leakage of air, and consequently waste of power, will be much greater, and although the first cost of laying down light cast-iron socket-pipes may be higher than a brick or tile flue, the extra cost will be quickly repaid by the increasing efficiency of the blower, and saving of power in driving; in fact, to experience the full benefit that may be derived from the blower tight pipes are absolutely essential. The diameter of the blast-pipes should be so proportioned that the air delivered through the pipes does not travel at a higher velocity than 60 ft. per second. Experience has shown that for a cupola the size of pipes, as determined by the following rule, has given good results—viz., divide the area of the cupola in square inches at the melting point by ten, the square root of the quotient is the diameter of the blast-pipe, also in inches. If the pipes exceed 50 ft. in length the diameter should be increased somewhat to allow for the friction of the air in the pipes. As we again intend to refer to Baker's patent rotatory blower and gas exhauster, we shall for the present postpone the description of the machine with its working action till then, and will now proceed to notice Horsfall's patent bolt forging machine, exhibited by Messrs. Greenwood and Batley, of the Albion Works, Leeds.

In this machine heads of any desired form may be put on bolts, screws, spikes, or rivets, such as square heads, with square, oblong, or round necks; hexagon heads, with round necks; cheese heads with square or round necks; mushroom heads, with square, round, or oblong necks; and countersunk heads, with square or round necks. The working capacity of the machine per day is stated to be about 18 gross of bolts, with mushroom, countersunk, spike, or rivet heads, and about 12 gross of bolts with square, hexagon, or cheese heads. These classes of bolts are made from round iron, previously heated in a forge fire-place at the side of the forging machine. The heads are formed on the end of the bar, and the bolts cut to any required length in the machine at the same heat, thus causing the cost of forging to be the same for any length of bolt. The bolts made on the machine with square, hexagon, and cheese heads do not require any dressing or finishing by hand, but on mushroom or countersunk heads a slight film is left, which can be removed either in a spike or rivet trimming machine, or in a pair of dies in the bolt forging machine. The bar-iron, being heated to whiteness in the forge fire, is next placed suitably in the forging machine, when, by working a foot-treadle, the heated end becomes formed to the shape required by suitable dies playing upon it. A pair of dies, likewise acted upon by the forging machine, and fitted to it, may be then made to cut the bolt at any length desired. Moreover, a breaker is applied to this machine to prevent undue strain being put on the working parts through the carelessness of the operator in placing the iron in the dies. By means of a self-acting stop-motion the machine can be stopped after each single revolution, or it can be kept in continuous motion, at the will of the attendant, at a speed of from 50 to 70 revolutions per minute, the latter speed being recommended for working with.

[To be continued.]

CONVERTING SCRAP IRON INTO STEEL.—The features of novelty in the invention of the Terre Noire La Voulte and Bessemer Foundry Company consists in converting old rails, axles, tyres, and such like materials into steel, or metal having the property of steel, by melting down in a Siemens-Martin furnace a certain quantity of iron containing less than 1-1000th of phosphorus with a proportion of the said old rails, axle tyres, and such like materials, and then throwing into the mass and during the running off fragments of ferro-manganese or ferro-silicium in such quantity that the melted metal shall contain 1 per cent. in weight of manganese, or $\frac{1}{2}$ per cent. of silicium.

HOLLOWAY'S PILLS AND OINTMENT.—When the tongue is red and raw, looking like a ripe strawberry, then there is great danger of the lining of the stomach and bowels being irritated and inflamed. Much caution should then be used in diet, which should be principally farinaceous and milk; the ointment must be assiduously rubbed into the pit of the stomach and surface of the bowels, and if any diarrhoea be present no solid food must be taken. In congestion of the liver the tongue will be much coated, the pills should then be taken regularly till it assumes its natural aspect. These twin remedies will be found valuable to all who suffer from any liver complaint.

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PROSPECTUS.

This colliery is situate in the Forest of Dean, in the county of Gloucester, at a distance of about eight miles from Ross and fifteen from Gloucester. The high road from Ross to Monmouth passes through the property, and the Forest of Dean Branch Railway, which is now in course of construction, intersects the property, and passes within 20 yards of the pits. When this is completed the colliery will be in direct communication with Hereford and Gloucester, and the whole of the South Wales Railways.

The property, which is 95 acres in extent, is held under an agreement for a lease to be granted for a term of 21 years, at a dead rent of £100 per annum, merging into the extremely moderate royalties of 7d. per ton on large coal, 5d. on small coal, and 6d. on ironstone. The galeage dead rent is £30 per annum.

There are two seams of coal leased—viz., the Coleford High Delf, 5 feet thick, of which about 25 acres have been worked, and the Upper Trenchard Delf, 2 feet thick, untouched, containing together an aggregate reserve of 70,000 tons.

These seams produce good house and steam coals, for both of which there is a good demand in the neighbourhood.

This colliery will be acquired by this company on most reasonable terms, with the intention of pumping out the water, which has accumulated during the time that it has been idle, putting the plant into thorough repair, and re-opening the workings.

There are three pits sunk on the property to the Coleford High Delf seam, at 70 yards from the surface, one pumping-engine, with two boilers, pumping gear, and lift, one winding-engine and boiler, pit frames, &c.

It is estimated that the colliery can be put into thorough repair, and made capable of producing an output of 60 tons a day, within six or eight months, which can be increased to 100 tons per day in nine to twelve months.

The present selling price of the coal on the bank at the adjoining colliery is 14s. per ton for large coal, and 6s. per ton for small, while the cost of getting, including all expenses, will certainly not exceed 7s., which, supposing the proportion of small coal to large to be as much as one to one, will produce a net profit of 3s. per ton all round, equivalent, on an output of 100 tons per day for 250 days, to a profit of £3750 per annum, whereas 6d. per ton only would be more than sufficient to provide for the interest on the Preference Shares. Moreover, it must be remembered that this calculation is based on the lowest summer prices.

The chief advantages which these shares offer are a preferred dividend at the rate of 12 per cent. per annum, secured for the first year during the development of the colliery by the deposit of £600 in the names of two trustees, the reasonable terms upon which the property has been acquired, and the arrangement whereby the cost of management will be dependent on the profits.

Full Prospectuses and Forms of Application can be obtained from the Bankers, or from the Secretary, at the offices of the company.

THE BRITISH IRON TRADE, AND INDIAN RAILWAYS.

The Indian market has been a valuable one for the British iron trade, and it may possibly afford some help to it in the future. But it must be admitted that the experiment made by the Indian Treasury in guaranteeing interest upon the capital expended upon the arterial Indian lines has not thus far been attended with very encouraging results. The East Indian Railway, which is the most important member of the group of guaranteed lines, has certainly swung clear of the Government guarantee, and has proved self-supporting, and even more than self-supporting. But the three systems ranking next in importance—the Great Indian Peninsula, the Madras, and the Bombay, Baroda, and Central India—still impose serious annual charges upon the Indian exchequer. In the six months ending Dec. 31, 1874, the balance of net profit realised by the Great Indian Peninsula was only 219,976/-, while the amount of guaranteed interest which the Indian Government had to advance was 567,316/. In the case of the Bombay, Baroda, and Central India, the net revenue earned in the six months ending Dec. 31, 1874, was 52,453/-, while the Anglo-Indian Treasury paid guaranteed interest in the same period to the extent of 192,782. The net earnings of the Madras in the second half of 1874 were 89,059/-, while the guaranteed payment of the Anglo-Indian Treasury for the same period was 250,162/. In the case of these three companies alone the Anglo-Indian Treasury was a loser by its guarantee to the extent of about 650,000/. And the guarantee leakage did not stop here. It was increased by a corresponding loss upon the South Indian, the Scinde, Punjaub, and Delhi, &c., so that, altogether, the Anglo-Indian Treasury is now very shy in giving any more interest guarantees. Certainly, the guaranteed lines of British India have conferred solid strategic advantages upon the English in India, and have given them a material hold upon the vast peninsula of Hindostan such as they never before possessed. Certainly the guaranteed lines of British India have also opened up, to some extent, the resources of that immense quarter of the world, and have increased, *pro tanto*, the revenue of the Indian exchequer. Nevertheless, the interest burthen which the five per cent. guarantee system has entailed upon the Indian exchequer is severe, and it is not at all surprising that the Indian Government should have evinced a disposition to undertake the construction of the new lines authorised in India upon its own account, to carry them out in a lighter and cheaper fashion, and to give no more guarantees.

However, the great group of guaranteed Indian lines must be regarded as an accomplished fact. The network has been carried out, whether the system pursued in its development was an exactly wise one or not, and it now remains to turn the 5000 miles of guaranteed line to the best possible account, and to work it as cheaply as may be. One good result which has attended the establishment of the guaranteed railways in India has been a certain amount of progress in the utilisation of the native coal resources of India. The Nerbudda Coal Company, for instance, has at last, after many weary profitless years, found a good outlet for its produce upon the Madras and Great Indian Peninsula systems. The East Indian Company has also encouraged in a satisfactory fashion the working of native

coal, and has already profited rather materially thereby. It is clear, however, that more must be done with the utilisation of the native coal wealth of India if the guaranteed railways of India are ever to produce better balance-sheets than those which they now periodically exhibit. Short feeders and more common roads are also needed to enable the guaranteed lines to fully accommodate the districts which they are intended to serve. These various measures will, doubtless, receive due consideration in official quarters; but meanwhile the partial failure of the guarantee system chills, to some extent, the enterprise of the Indian Government in the important matter of Indian railway development.

SCIENCE OF STEAM.—The second part of Mr. N. P. Burgh's "Practical Treatise on the Science of Steam in Relation to the Economy of Fuel in Modern Engines and Boilers" has just been issued, and is fully equal in character and general "get up" to its predecessor. The plates, which form the most valuable portion of the work, comprise diagrams of upwards of two dozen arrangements of cylinders and valves for compound engines from the time of Hornblower to the present; and a series of diagrams showing the relative position of the pistons and cranks of high and low pressure cylinders of a compound engine. The number will be appreciated by practical men.

STREET'S INDIAN AND COLONIAL MERCANTILE DIRECTORY.—The edition for 1875-6 of this valuable directory has just been issued (London: G. Street, Cornhill; Street Brothers, Serle-street), and it would be scarcely possible to say more in its favour than that it gives evidence of the same amount of care having been bestowed upon its production as upon its predecessors. To give an idea of the extensive range of information furnished by the volume, it will suffice to state that it embraces the whole of the Indian and Colonial possessions of Great Britain, and with regard to these the various steam routes, with rates of fares and times of transit, are given, thus placing concisely before the public, the different facilities offered by the several companies, and enabling them easily to select the most advantageous course for their purpose. Particulars of the various railways in operation or construction are also supplied where practicable. All the London agents to each of the banks are named, so that the merchant is enabled to see to whom to apply where financial information is needed in connection with any particular town or city. Full particulars are likewise given as to the principal products, and the articles in which the trade of each place chiefly consists, so that merchants can at once tell (guided by the customs tariffs given), with regard to shipments, what class of goods would be likely to prove most remunerative, &c. The number of towns and cities represented has again been slightly increased. Messrs. Street remark that still more would have been included but for the principle by which they have all along been actuated—never to give any information that is not (as far as all possible care and labour can make it) perfectly reliable. The value of the trades' directory of the several colonies, &c., and of the details of population, extent of country, &c., is almost inestimable, and they afford a ready means of enabling the man of business to ascertain where there is a probable outlet for his products, and to what extent any given market is supplied. Even a directory is not altogether uninteresting when carefully pursued, and the Indian and Colonial is no exception to the rule, for the engineer of the Japanese Imperial Railway is Mr. Boyle, the accountant of Nagpore is Mr. Cooke, and the Receiver-General at Ottawa is the Hon. Thos. Coffin, and so on in innumerable other cases. That the volume may be of the utmost possible value to merchants and others for whom it is intended, similar details to those already mentioned are given for Rio de Janeiro, Bihia, Rio Grande do Sul, Buenos Ayres, and other South American cities, as well as for many of the principal commercial towns of Great Britain and Ireland. The production of the work must have involved an immense amount of time and labour; but all this is well repaid by the result, as the directory is one which no merchant with any business worth mentioning can afford to be without.

LEAD MINING IN THE NORTH OF ENGLAND.

NO. I.—THE LONDON LEAD COMPANY'S WORKS.

The works of the London Lead Company, in the North of England, are the largest of their kind in the United Kingdom. They embrace mines in Weardale and Teesdale, in Durham, in North Yorkshire, in Westmoreland, and in Cumberland, the whole extent of royalty held in these different districts being not less than 75,000 to 80,000 square miles. The London Lead Company has a most interesting history. It was founded in the reign of Queen Anne, from whom it received a special charter of incorporation, and it is worthy of note that it is the only company in Great Britain, except the Bank of England, that holds a charter direct from the Crown. Tradition and the archives of the company together afford the following particulars as to the origin of the company. A Quaker lady, of the name of Fox, in travelling from the North to London in the old stage coach *regime*, had her attention called to the fact that in the hills and dales of the Northern Counties there were valuable minerals which it only required capital to develop. At the same time she saw for herself that there was a sturdy, but poverty-stricken, population available for working the mines, and to whom the chance of employment in such an industry would be a positive boon. She, therefore, on her arrival in London, laid the matter before several of her Quaker friends, who were induced to aid her in subscribing the necessary capital, and the company was thus projected. Some of the mines which the newly-formed corporation undertook to work on Alston Moor had been worked in the time of the Romans. In the Silver Band Mine, on the Alston Hills, traces of Roman workmanship have been found, together with a number of Roman coins, thus indubitably proving that Caesar's legions had not only established themselves in this part of the country, but had also followed the arts of peace with tolerable success. In one of their mines on Alston Moor, which they worked until a few years ago, when the lode came to an abrupt termination, the company have records of regular working for more than 500 years, and they estimate the value of the lead obtained from the mine during that time at not less than 5,000,000/- sterling. One of the company's mines in Teesdale, which was opened out a few years ago, has turned out one of the richest of its kind in the world. For the last two years the company have raised from this mine, with only 100 hands, not less than 2000 tons of pig-lead per annum. This is a greater achievement in its way than anything that has been done at the celebrated Van Mine, where it requires 500 men to raise about 6000 tons of lead ore per annum. The total quantity of pig-lead produced by the company has for some years past averaged about 10,000 tons per annum. The total number of hands employed, including artizans and general labourers, is about 2000. It is not so long ago since the London Lead Company and Mr. W. B. Beaumont, M.P., the owner of the celebrated Allenheads Mines, could either throw into or withdraw from the market lead enough to "rig" or "bear" it at pleasure, and even yet they exercise a more considerable influence on the lead market than any other English producers. But within the last few years a great development has taken place in Spain, which now annually throws into the English market nearly as much lead as the total quantity raised at home, while the extensive lead mining operations carried on in America by such companies as the Richmond Consolidated has also exercised an appreciable effect in discounting the influence of English firms.

The principal mining operations of the London Lead Company are carried on in Teesdale, on the fells above Middleton. They have here the almost undisturbed possession of a vast tract of moorland belonging to the Duke of Cleveland, and stretching from Middleton, in Teesdale, on the one side, to Stanhope, in Weardale, on the other. Between these two termini there is a road used almost solely by the lead company, where one may travel for half-a-dozen miles without seeing the slightest trace of civilisation. On the other side of the Tees the company have a large royalty leased from Mr. John Bowes, of Streatham Castle, and in all cases the royalty payment is one-sixth of the total quantity of lead produced. The company's miners have often to walk a long distance from their homes to the mine. Their principal place of residence is in and around the pretty village of Middleton, which may be called the mining capital of the North. Generally speaking, the miners are very comfortable—the result of sobriety and steady industry. They usually work 40 hours per week; and in order that they may have two clear days in each week for the cultivation of the small holdings which most of them have acquired on the moors or in their immediate vicinity, they compress their 40 hours per week into four days—Monday, Tuesday, Wednesday, and Thursday—thus leaving the two last days entirely free. Their average earnings well about 24s. per week, free of all extras and deductions. They have a mode of managing their affairs which is as successful as it is exceptional. Every year they hold a meeting, and appoint one of their number to act as the medium of communication between themselves and their employers. It is the duty of this delegate to see that as far as possible the men do their duty to their employers, and the employers fulfil their obligations towards their men. There is a set of rules and regulations for the conduct of the miners. A breach of these rules, or direction in any other way, is generally attended by a specified fine, but the employers instead of inflicting the fine on the real culprit—whose culpability they might possibly fail after infinite trouble to establish—impose it upon the delegate who acts as the vicar of the men, and whose business it is to ascertain as best he can the offender, for whose offence he is thus made responsible, and then deduct the penalty from his wages. If it is found impossible to trace the offence to its real source the amount of the fine is generally distributed over all the men in the mine or colony where the offence occurred. This plan has hitherto been found to answer remarkably well. It relieves the employers from a great deal of harrassing trouble, and is calculated to put the men on their good behaviour.

Under the able and energetic management of Mr. Bainbridge, the London Lead Company's mines are generally remarkable for their adoption of all the most improved processes and appliances available in this branch of mineralogy. The company as now constituted is chiefly composed of wealthy London bankers, who have unlimited capital at their disposal, and when funds are required they are readily forthcoming. The *modus operandi* of winning the lead is much similar to that adopted at other mines in the North. The drifts are made about 6 ft. 6 in. high, and 4 ft. 6 in. wide, and for the purpose of securing greater safety they are always arched, except where driven through the solid rock. For the purpose of making the arching more easy, the drifts are generally driven in the shale formation. The lead ore is broken up by Marsden's patent Blake's stone and ore crusher. The company have seven or eight of these machines in operation at their different mines, and they answer the purpose of their application better than anything yet devised. After the ore has been crushed it is carried from the bottom trough of Blake's ore crusher by a series of vessels, which are placed at much the same angle, and are moved in much the same way, as the buckets of a dredging-machine. These vessels deposit the ore in a trough, which is worked by an automatic motion, and where by the application of water the precious mineral is separated from the base matters in combination with which it is found. The process was formerly carried on entirely by hand, the ore being placed at a vessel much the same as an ordinary corn sieve, and shaken backwards and forwards until the greater specific gravity of the lead brought it to the bottom. Of the other appliances in operation there is, perhaps, not much to be said that would be altogether new to our readers. The dressing-floors generally are constructed in the same way as others of their kind in the North, and the ore-dressing machinery is so perfect and complete that the company secure all but a trace of the lead. Within the past few weeks the company have adopted a new process for the desilverisation of lead which is entitled to notice from the valuable economy which it promises to introduce. A short description of this process will not be out of place.

It is now rather more than two years since M. Rozan, a Frenchman, introduced to the world the new process for the desilverisation of lead, which bears his name, but it was not adopted in this country until it was taken up last year by Mr. Cookson, of Newcastle, and Mr. Cookson reported so favourably on its results that

AUG. 7. 1875.

the London Lead Company were induced to give it a trial. The principle of the Rozan process is much similar to that of the well-known process of Mr. H. L. Pattinson, which was fully described in a report made about 15 years ago to the British Association. The Rozan process, however, is carried out by the mechanical agency of steam. Two separate pots are made use of—the one containing 20 tons and the other 6 tons. At the bottom of the 20-ton pot, which may be described as the working vessel, there is a steampipe, with a valve through which the steam is let into the molten lead at pleasure. The pressure at which the steam is applied is about 55 lbs., which is found sufficient to support the lead, and prevent it from going down into the steam-pipe while it is being desilverised. By this process a considerable saving of labour is effected, which must necessarily vary according to the percentage of silver contained in the lead, but which Mr. Bainbridge has estimated all round at fully a third, while it is also proved that the desilverisation of the lead is more completely effected than by the Pattinson or any other process now in use.

For the purposes of the Teesdale Mines of the London Lead Company two large reservoirs of water have been formed between the mines of Little Egglestone and Wiegill, about seven miles from the village of Middleton, and their capacity is sufficient for the storage of an ample supply in all seasons. A third reservoir has been formed at a merely nominal cost by damming up one of the old drifts on the same route at its abutment on one of the dressing-floors.

Greetings of Public Companies.

PRINCE OF WALES MINING COMPANY.

A general meeting of shareholders was held at the offices, St. Michael's House, yesterday (Friday),

Mr. J. Y. WATSON, F.G.S., in the chair.

Mr. C. B. PARRY (the secretary) read the notice convening the meeting, and the minutes of the last were confirmed.

The report of the committee was read, as follows:—

The accounts presented to this meeting are for four months, and show a loss of £50,11s. 11d., and a balance of liabilities over assets of £54,10s. 5d. The cash in hand is £90,15s. 10d.; arrears of calls, £38,9s.; and the amounts due to merchants, £90,15s. 10d. The costs of the mine continue very heavy, as compared with the returns, and a very strong correspondence has taken place with the agents in regard to the management generally. At the last meeting it was stated that the arsenical mundic lode would fall into the company's hands in May, and since that time about 200 tons have been raised, which the committee were led to believe from the assays was worth at least 2d. per ton, but at present no adequate bill had been made for it, and there is an impression among the agents that the buyers purposely hold aloof, thinking to get it at their own prices. According to one assay, this mundic contained for one piece 28% and another 30% per cent. of arsenic and 5 ozs. of silver per ton; another assay made the whole 22% per cent. It will be in remembrance of the shareholders that more than a year ago when the mine was so poor for copper that shares were selling for 6d. each, and, in fact, being given away. The majority of the mine was bought up by some gentlemen interested in the new process for returning poor copper ores. And we were led to believe that in the maturity of that process we might look for great and important results. Two gentlemen interested in the process were elected as the committee of management of the mine, and the new scheme propounded embraced a much larger area for working, and the erection of more powerful machinery. That a large quantity of stuff might be got from the mine for such a process that would not pay under ordinary smelting is quite clear, but to the present time we have heard nothing more of the process itself, and perhaps Mr. Phillips will be able to enlighten us upon it. At all events, it is necessary that smelting should be done, for without a discovery the mine will not pay costs under its present mode of working, and when you have heard the reports read I shall have a plan of my own to lay before you.

The report of the agent was read, as follows:—

Aug. 4.— Since the last general meeting the 77 east has been driven 14 fms. 1 ft.; to date varying from 1 ft. to 2 ft. wide, unproductive. On Thursday last we had the end dialed, where, as can be seen by the plan that the part of the lode driven on has taken a more easterly direction than the average bearing of the lode throughout the mine, and we have put the men to cross-cut south to see if any more lode is standing in that direction. We have six pitches working on the copper lode, by 18 men, at an average tribute of 11s. 2d. in. On the Wheal George mundic we have two pitches working: No. 1, in base of deep adit, west of Valley shaft, by seven men, and 18s. per ton for mundic. East of the Wheal George lode is No. 2 pitch in back of the deep adit, by eight men, at 12s. 6d. per ton for mundic. On Friday last we divided a parcel of copper ore (computed 88 tons) of about the usual quantity, which will be sampled on Friday, the 6th inst. We have also about 190 tons of mundic ready for the market, and about 25 tons more broken to be dressed. In conclusion, we are sorry we cannot place a more chearing report before the meeting; and as we have but one end driving, and the tribute ground on the copper lode is getting short, also the mundic lode not turning out to expectations, we cannot offer any chances of success unless capital could be raised to put in a larger engine and pitwork to sink the mine deeper, and extend the levels both east and west on the main lode, and also to prove the north lode. The set is full 800 fms. wide, and about 1 mile long, on the run of the lodes; two of them only have been wrought on—the Good Luck lode, 40 fms. deep, and the Prince of Wales lode, 90 fms. deep, and the largest level being driven only 90 fms. In the 90 east the lode is of a very promising character, being full 3 ft. wide, composed of capel and quartz, with copper and tin ores intermixed, worth of the former 6d. per fathomfull. In the 90 west we drove through a good run of copper ore ground more than 20 fms. in length, in places yielding 5 tons per fathom. The backs which at the present standard could be worked at a good profit when the water was forked at this level. Again, if capital could be raised to put in a larger engine and necessary pitwork to work vigorously, we firmly believe the sett would be found second to none in the district, and that good results would follow.—J. GIFFORD, J. PRYOR.

Mr. H. L. PHILLIPS had seen the monthly cost-sheets, which had been uniformly high in proportion to the results, and enquired of the manager, Capt. Gifford, what he anticipated would be the returns during the next two or three months?—Capt. GIFFORD said the mundic lode had not come up to expectations; it had turned out less mundic, and they could not see that which had been broken.

Mr. PHILLIPS said their difficulty no doubt was that they were unable to burn the mundic—there would be no difficulty in selling arsenious soot.

The CHAIRMAN said that Capt. Gifford was hardly right in saying they could not sell their mundic, as several offers had been made, but the price was not that which had been expected.

Mr. PHILLIPS thought the offers should be accepted under the circumstances. If the arsenic lode were worked properly it would pay well, especially if turned into soot. Under the circumstances they must take the best price they could get.

Capt. GIFFORD, in reply to a question, stated that the offer was 17s. 1d. per ton.

The CHAIRMAN said that at the adjoining mine they had sold 100 tons at 27s. and 100 tons at 24s. per ton, whereas the Prince of Wales mundic, containing 5 ozs. of silver and 1 per cent. copper, could not be sold for more than 21s. per ton.

Mr. PHILLIPS said they had one of the best mines in the district for the process now being so successfully carried out at New Consols, and he could not help thinking that they had a very valuable property if only properly worked. If proper works were erected, and the whole of the metallic contents of the ore returned, the property would prove a valuable one. For his part, it was not sufficient to raise stuff for other people to get the benefit of.

The CHAIRMAN said his idea was that Capt. Andrews (of Wheal Crebor) should inspect the mine, and if his report were favourable there would be no difficulty whatever in placing the whole of the forfeited shares, and providing the necessary capital for the new engine, &c. He would suggest that the meeting should be adjourned for the purpose of receiving such report.

Capt. GIFFORD said, as a shareholder, that before putting up any works for the treatment of the mundic lode it should be known that they could not follow that lode under the adit. He did not know any place in the mine where any quantity of copper could be found in the mundic; where the ore was found it was generally from 3 to 4 produce. So far as any large quantity of low price ore was concerned, he had never seen any.

The CHAIRMAN said the process referred to by Mr. Phillips would enable them to utilise that which was now wasted—the waste part of the lode.

Capt. GIFFORD fully believed they had a really valuable mine if capital could be raised for the proper working of it.

After a few further discussion, the accounts were passed and allowed, and (with the report) were ordered to be entered on the minutes.

A call of 1s. per share was made.

It was unanimously resolved that Mr. Pearson should be elected a member of the committee, and that Capt. Andrews should be employed to inspect the mine and to report as to the cost of the necessary machinery, &c.

A special resolution was passed forfeiting shares in arrears of call, to be restored if paid within a stated time.

The meeting was then adjourned till Aug. 27.

OLD BATHOES LEAD MINING COMPANY.—At the meeting, on Thursday, the report and balance sheet were received and adopted, and a resolution was passed that the company should be wound up voluntarily.

HUNTINGTON COPPER AND SULPHUR COMPANY (Limited).—At a meeting, held on Friday in Glasgow, Mr. Wright, one of the directors, who presided, stated that from the cash-book of the company he found that Lord Provost Bain, of Glasgow, and Provost Morton, of Greenock, had each received 1000/- of promotion money. Each of these gentlemen had returned the money—the latter with 150/- of interest. Mr. Wright had in narration which led him to believe that Mr. Henderson, chairman of the company, had received something like 10,000/- in the course of the conversation it was suggested that legal steps should be taken to recover this sum. Ultimately a committee of investigation was appointed.

[For remainder of Meetings see today's Supplement.]

VAN RAILWAY.

The report to be submitted at the forthcoming meeting states that the expenditure on capital account during the half year has been 206,18s. 8d., raising the outlay on that account to 21,677,19s. 9d., or 1067,19s. 9d., in excess of share-capital. The net revenue account shows a credit balance of 557,4s. 8d., which added to the balance left over from last year, makes 1,81,18s. 8d. The directors recommend that a dividend at the rate of 4 per cent. per annum be declared, which will absorb 400/-

The balance of capital account is 1067,19s. 9d., leaving a balance to carry over 213,18s. 11d.=1681,18s. 1d. There are still some small outstanding accounts on capital account which the directors hope to close up during the current half year, and will absorb the greater part of the present balance of 213,18s. 1d.

THE COPPER TRADE.

The market opened at 81s. 10s. to 82s. for Chill bars, with small sales, awaiting news of charters from Valparaiso, which were expected sooner or later to be heavy, as it was pretty generally believed that a large stock had been accumulating speculatively on the coast for some time, so when on the 6th ult. cablegrams advised 4000 tons in fine copper as the charters for the second half of June, followed by 2300 tons for the first fortnight of July, it was no particular surprise. Prices gave way about 30s. per ton without much business, and again 30s. to 40s. down to 78s., at which point buyers came forward for moderate quantities, and when on the 3rd inst. a lighter charter of 1300 tons was announced for the second half of July the market became firm, and holders asked 79s. 10s. to 80s., at which a little business has been done, it is said by those who had over-sold themselves. However, the general aspect of the market has not materially improved, as consumers state that they have been able to make considerable purchases of English raw copper at prices much under current rates, but as a rule the leading smelters of this description have not filled their order books, and consequently, are still willing to accept such a price as to make dealing in Chill bars almost prohibitory, thus creating an irregularity in prices which, combined with the large increase of the total stock and afloat, inspires great want of confidence in the future.—117, Leadenhall-street, Aug. 6. VIVIAN, YOUNGER, AND BOND.

To be published in October next, in One Volume, deny 8vo, price One Guinea.
A TREATISE ON
THE JUDICATURE ACTS,
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RULES OF COURT AND FORMS OF PLEADINGS,
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early copies.

TANKERVILLE MINING COMPANY
(LIMITED).

Notice is hereby given, that the Directors have this day DECLARED A DIVIDEND OF FIVE SHILLINGS PER SHARE, free of income tax, PAYABLE on and after the 20th inst.

Notice is also hereby given, that the Transfer-books of the Company will be closed from the 7th to the 20th inst., both days inclusive.

By order of the Board,
J. H. MURCHISON, London Manager.

8, Austin Friars, London, 3rd August, 1875.

2, G. GRAINGER, Secretary.

1, King's Arms yard, Moorgate-street, London, July 31, 1875.

LONDON AND COUNTY BANKING COMPANY.

Established in 1836, and
Incorporated in 1874 under the Companies Act, 1862.
Subscribed capital £3,750,000, in 75,000 shares of £50 each.

REPORT ADOPTED AT THE HALF-YEARLY GENERAL MEETING, AUGUST 31, 1875.

The directors, in laying before the proprietors the balance-sheet of the bank for the half-year ended on 30th June last, have the satisfaction to report that, after paying interest to customers and all charges, allowing for rebate, and making provision for ordinary bad and doubtful debts, the net profits amount to £165,929.2d. This sum, added to £18,930.9s. 5d. brought forward from the last account, produces a total of £184,850.12s. 3d.

They have declared an interim dividend for the half-year at the rate of 15 per cent. per annum, which will absorb £96,000, and after reserving £6093.1s. to meet interest accrued on new shares, there remains a balance of £82,762.17s. 3d. to be carried forward to profit and loss new account.

The directors regret to report that an exceptional loss has been incurred through the failure of Messrs. A. Collier and Co., whose drafts upon various firms, amounting to £213,395.17s., held by the bank, have not been, or will not be paid at maturity, or in full. To meet this loss the directors have transferred from the reserve fund of profit and loss carried forward, will in their judgment be an ample provision for any deficiency that may arise.

The reserve fund, after the above deduction, stands at £636,995.

The directors have the pleasure to report that they have elected Mr. Robert A. Brooks of the firm of Messrs. Robert Brooks and Co., of St. Peter's Chamber, Cornhill to a seat at the board, vacant by the retirement of Mr. N. Alexander.

The rules and regulations for granting retiring and other allowances to officers of the bank having been submitted to counsel for consideration, he has advised that it is desirable that the resolution passed by the proprietors at the annual general meeting, held on 4th February last, authorising the directors to grant these allowances, should be confirmed by the proprietors at an extraordinary meeting, which, in conformity with notice already given, will be held after the conclusion of the present meeting, when the resolution referred to will be submitted for confirmation.

The dividend, £1 12s. per share, free of income tax, will be payable at the head office, or at any of the branches, on or after Monday, 16th inst.

BALANCE-SHEET OF THE LONDON AND COUNTY BANKING COMPANY, 30TH JUNE, 1875.

DR.—To capital paid up £1,200,000 0 0

Instalments received in respect of new shares 223,790 0 0 = £ 1,423,790 0 0

Reserve fund 525,000 0 0

Instalments received in respect of new shares 111,895 0 0 = 636,895 0 0

Amount due by the Bank for customer's balances, &c. 21,249,000 17 1

Liabilities on acceptances, covered by securities 1,960,488 6 0 = 23,209,489 6 1

Profit and loss balance brought from last account 18,930 9 5

Gross profit for the half-year, after making provision for bad and doubtful debts 445,488 7 7 = 464,374 17 8

Total £25,734,549 0 1

CR.—By cash on hand at head office and branches, and with Bank of England

Cash placed at call and at notice, covered by securities 2,980,906 17 3 = £ 6,100,561 0 4

Investments, viz.:—

Government and guaranteed stocks 2,021,814 16 9

Other stocks and securities 82,103 7 6 = 2,103,918 4 3

Discounted bills, and advances to customers in town and country 14,831,608 1 3

Liabilities of customers for drafts accepted by the Bank (as per contra) 1,960,488 6 0 = 16,792,093 1 1

Freehold premises in Lombard-street and Nicholas-lane, freehold and leasehold property at the branches, with fixtures and fittings 421,815 9 0

Interest paid to customers 102,915 9 1

Salaries and all other expenses at head office and branches, including income tax on profits and salaries 123,413 17 9

Total £25,734,549 0 1

PROFIT AND LOSS ACCOUNT.

DR.—To interest paid to customers, as above £102,915 0 1

Expenses 123,412 17 9

Rebate on bills not due, carried to new account 53,190 0 0

Dividend of 8 per cent. for half-year 98,000 0 0

Reserve to meet interest accrued on new shares 6,093 15 0

Balance carried forward 25,734,549 0 1

Total £464,374 17 8

WEST CRAVEN MOOR LEAD COMPANY
(LIMITED).

Incorporated under the Companies Acts, 1862 and 1867, whereby the liability of each shareholder is limited to the amount of his shares.

Capital £30,000, in 3000 shares of £10 each,

Of which £120 are now offered for subscription.

Payable £1 per share on application; £2 per share on allotment; and the balance as required by instalments not exceeding £2 per share,

at intervals of not less than six months.

Share Certificates will be issued in exchange for receipts on fully paid-up shares.

Applications may be made for shares to be paid in full, upon which a discount of 5 per cent. will be allowed.

If no allotment be made, deposits will be returned in full.

DIRECTORS.

EDWARD HILTON, Esq., Radfield, Clapham Park, London, S.W.,
and Speivers Park, Horshamdon, Kent.

RALPH HESLOP SILVERSIDES, Esq., Pinner Wood House Watford, Herts.

GRANVILLE SHARP, Esq., No. 2, Gresham Buildings, Basinghall Street, London, E.C.

(With power to add to their number.)

HANOVERS.

THE ALLIANCE BANK, Bartholomew-lane, London, E.C.

SOLICITORS.

Messrs. LEAROYD, LEAROYD, and CO., Albion Chambers, Moorgate, London, E.C., and Huddersfield, Yorkshire.

MANAGING DIRECTOR AND SECRETARY.

GRANVILLE SHARP, Esq.

OFFICES.

No. 2, GRESHAM BUILDINGS, BASINGHALL STREET, LONDON, E.C.

PROSPECTUS.

This company is formed for purchasing an extensive mining property, and working its many lodes on a scale commensurate with their undoubtedly great productive power.

It is situated between the rivers Wharfe and Nidd, 4 miles west of Pateley Bridge, and 8 miles east of Skipton, in the county of York; the turnpike road being its southern boundary.

The property is about a mile long and nearly a mile wide, affording ample scope for extensive working, and is held by lease for 21 years, at a royalty of 1/-th, bearing date 8th day of June, 1875.

Twelve well-defined east and west lodes traverse its entire extent, and there are several cross-courses intersecting them, by which they will doubtless be as favourably influenced as they have been by similar cross courses in the neighbouring Cockhill and Sunside Mines.

It is of importance that there are extensive workings on the backs of several of the lodes; their existence, continuity, and value being thus proved, and first costly explorations avoided, as well as many years of labour saved. Although the average depth of such workings does not exceed 25 fms., they have produced considerable quantities of lead.

The neighbouring mines are among the most celebrated in the kingdom, having been worked for hundreds of years, produced immense quantities of ore, and paid large profits. Those nearest are the Cockhill, Sunside, Burhill, North Rake, Yorkshire, and the Duke of Devonshire's famous Grassington Mines, which last-mentioned are said to have realised profits amounting to as much as £70,000 in one year; having been worked uninterruptedly for over half a century. As regards the great productiveness of the lodes in the Cockhill and Sunside Mines, it is only necessary to state that they have been worked to the depth of 100 fms. (some of the plots have yielded as much as 8 tons of lead to the fathom), and that the levels on the many lodes opened out exceed 8 miles in extent. In proof of their continued productiveness a steam engine has recently been fixed at the lowest point underground for the deeper development of them. They have been at work for centuries, their returns and profits in gross exceeding even those of the Grassington Mines. Many of the same lodes traverse the entire extent of West Craven Moor, and have proved productive to the depth worked, although only 25 fms. below surface; moreover, being in the same mountain lime rock, there is every reason to expect equally great results from them as any that have ever been obtained in Cockhill and Sunside—that is to say, on being opened out a little deeper in richer ore-bearing ground, and on a scale commensurate with their capabilities.

In the western portion of the grant, a level is driven a long distance eastward, and it is proposed to continue it (on the course of a lode which has produced many hundreds of tons of lead) to come in under the workings on the two newly discovered valuable lodes, which will drain them to the depth of 50 fms. Moreover, by putting out cross cuts to the parallel lodes they also will be drained, leaving thousands of fathoms of dry backs to be taken away, independently of any pumping machinery, thereby effecting a very great saving, more particularly now that steam-engine fuel is at such a seriously high price. The first newly-discovered east and west lode is near one of the north and south ones, and although only proved to the depth of 9 fms. over 20 tons of lead have been got and sold from it. It has produced already 1½ ton of ore to the fathom. Capt. Williams in his report, says, "It is altogether as grand a looking lode as any ever opened out in any mine in the district at such a trifling depth." About 30 fms. further west another important discovery (greatly enhancing the value of the property) has been made, the lode producing over 1 ton of lead to the fathom. It has been opened out 4 fms. in length and 6 fms. in depth.

The ore is for the most part in a solid form, and requires very little dressing—little more than hand labour being necessary. The smelting works are only about 3 miles from the mines, with a good road thereto, the cost of smelting being about 2s. per ton, opening out the lodes from £2 10s. to £4 10s. per fathom, and sinking shafts £2 to £10 per fathom, there being plenty of good miners in the neighbourhood.

The accompanying satisfactory reports of reliable mining agents enter fully into particulars, allowing of no doubt in looking forward to the success of deeper developments. They must be carefully read to appreciate the full value of this property, which to attempt to fix would not be a little pretentious.

Mr. J. H. Hitchins, one of the most enlightened authorities of the day, possessing a sound knowledge, such as is only acquired by long and varied experience, says in his report:—"Although the great account given me of this property led me to think that I should find it a very valuable one, I did not expect to see lodes presenting evidence pointing so unmistakably to the realisation of great and early success, which the discoveries already made in my, indeed, be said to ensure."

Mr. Hitchins further says:—"To sink the present shaft, although only 9 fms. deep, is in a course of ore worth over £20 per fathom) bring in the Blackhill adit, and put out cross cuts for draining and working four or more parallel lodes to a depth of 50 fms., independently of any machinery, will not necessitate a large expenditure than £60,000, if so much; paying for all required dressing, and other machinery, means, and appliances. This will be getting at little cost a very valuable mine, and it is not the only one to be opened out in West Craven Moor. Such boldness may bring me under the charge of being too sanguine, but I have no fear of results proving me to be so." The value to be claimed for this enterprise is based on its many ore-producing lodes, not like the success of many mining companies, depending on one lode only. Attaching due importance to so many lodes, and their facilities of speedy and cheap development, "several of them having been very rich in the neighbouring mines," the opinion is justified that this company is embarking in an undertaking that will ensure the shareholders early and highly remunerative dividends.

Capt. R. Southey, of the West Chiverton Mine, after dwelling on some of the main points, concludes his report thus—"I have no hesitation in saying that, assuming no lodes in close proximity, with such facilities for opening them out, also taking into consideration the amount of lead ore got from the few fathoms of ground only worked on two of them, and to no greater depth than 9 fms., that the success of West Craven Moor appears to me to be a certainty."

The conclusion does, indeed, seem to be irresistible that if any property not more deeply developed can justify being recommended as certain to result in a very profitable investment, West Craven Moor is pre-eminently entitled to be considered such.

The only contract entered into by the company, or the directors or trustees thereof, is one dated the seventeenth day of July, one thousand eight hundred and seventy-five, made between Henry Lambert and William Brodie of the one part, and Granville Sharp on behalf of the company, of the other part, which is an unregistered, the lease already executed by them of the mining ground by the Lord of the Manor of Appletreewick.

Application for shares must be made par annexed form, but no application will be entertained unless the deposit of £1 per share has been paid on the number applied for. Should no allotment be made, the deposit will be returned without any deduction.

REPORT BY MR. J. H. HITCHINS.

(The discoverer of the Devon Great Consols Mines, which have paid £1,192,930 in dividends.)

The additional knowledge that I have gained of this property by a third visit to the discovered lode, although only as yet explored to the depth of 9 fms. (by a shaft sunk on its inclination), will produce over 1½ ton of lead per fathom. It is from 4 to 6 ft. wide, composed of gossan (oxidised ore and spar), carbonate of lime, white lead and blue lead, that is to say galena; presenting altogether such a highly mineralised and fairly approachable character as to justify the opinion that it will, at but little increased depth, prove one of very great productive power. It yields most lead at the deepest point of development, and is evidently improving. The length opened out on it is about 7 fathoms, being as productive nearly at most points as at the bottom of the shaft, and of an equally favourable character. This is beyond a doubt a very valuable lode, upwards of 20 tons having been sold of the ore already got from it. At about 30 fms. further west another important discovery has been made; the lode being 5 ft. wide, and worth from 1 to 1½ ton per fathom. It has been opened out for about 4 fms. in length and 4 fms. in depth, 4 tons 10 cwt. having been sold of the ore that it has so soon produced. I have no hesitation in saying that these two discoveries alone justify a very high value being claimed for this property, and they are intersected by cross courses, there being also observable in coming in branches and veins which have acted as feeders to them. More or less closely in connection with similar cross-course intersections and points of confluence of the same lodes have made the largest bodies of ore in the neighbouring Sunside and Cockhill Mines, and no doubt they will prove equally to be as productive in West Craven Moor. This opinion is firmly supported by analogy, to which experienced authorities will ever attach great importance, in living found it question whether the West Craven Moor lodes are in the same ore-bearing rock or limestone as the adjoining mines. In truth, several of them have been more or less extensively opened out, and to depths varying from 15 to 20 and 25 fathoms, having been productive also, and only discontinued for want of capital to bring in adits (airings levels) for their deeper development in the richer ore-bearing ground. These workings have proved the existence of the lodes, their continuity in depth and extent, as well as their productiveness, and it is to be confidently relied on

that the deeper development of them will (as in the adjoining mines) be attended with very profitable results. Moreover the shafts and adits on some of the lodes, and not far off from others, for intersecting and draining them much deeper (costing many thousands of pounds and saving many years working) are of much too great importance to be lost sight of.

The neighbouring mines (Cockhill and Sunside) are 100 fms. deep, and their levels are so many, so lengthy, and on so many lodes, as to measure altogether over 8 miles; having at some points turned out as much as 8 tons to a fathom. I strongly advise bringing on westward the deep adit on the Hardgate end lode to uncover much deeper the productive old workings thereon, and driving cross-cuts thereto, for opening out many lodes and veins at depths of 50 fms. and 60 fms., which no doubt will be as productive in West Craven Moor as in Cockhill and Sunside; the great importance of such a deep drainage level being too evident to need enforcing. In the western part of this property is Blackhill adit, which I also strongly advise being continued eastward, as it will come in 4 fms. under the shaft and workings on the two newly-discovered lodes, and by putting out cross-cuts to the parallel lodes (intersecting four in driving less than 60 fms.) many thousands of fathoms of ground will be workable independently of any pumping machinery. Assisted by the information derived from many reliable sources touching the trials of the former workers and their results, also attaching due importance to the reports of Messrs. Phillips, Williams, and Woodmass (sound local mining authorities), and with full confidence in my own knowledge of the primary conditions on which depends successful mining in this district, more particularly speaking, the productiveness of lodes in the mountain lime rock, the conclusion is irresistible that West Craven Moor is a property of immense value. Of the many lodes comprised within its extensive limits, the two particularly brought under consideration in this report are of the most immediate importance, producing already at the depth of a few fathoms 1½ ton of ore to the fathom. Although the great account given me of this property led me to think that I should find it a valuable one, I did not expect to see lodes presenting evidence pointing so clearly to the realisation of great and early success, which the discoveries already made may indeed be said to ensure. To sink the present shaft (already 9 fms. deep, and in a course of ore worth over £20 a fathom), bring in the Blackhill adit, and put out cross-cuts for draining and working four or more parallel lodes to a depth of 50 fms., will not necessitate a larger expenditure than £60,000, if so much; paying for all required dressing and other machinery, means, and appliances. This will be getting at little cost a very valuable mine, and it is not the only one to be opened out in West Craven Moor. Such boldness may bring me under the charge of being too sanguine, but I have no fear of results proving me to be so. I have more confidence in my judgment now than I had when introducing the Devon Great Consols Mines, as justified by 30 years additional experience, although I said from the first that the results would take the mining world by surprise. The close upon £1,200,000 dividends that they have paid cannot but be considered a brilliant realisation of that prediction. Although such prizes are "few and far between," it is not too much to believe "there are as good fish in the sea as ever." That there is a good one in West Craven Moor is my firm conviction, although I do not say that it is another as the one caught in the Devon Great Consols. If only one-fourth is good, the shareholders will have ample reason to be satisfied.

J. H. HITCHINS.

Report by FRANK PHILLIPS, Bewerley House, Pateley Bridge, Yorkshire.

I have again made an inspection of this property, which exceeds a mile in extent, and is about a mile in width, having the continuation throughout, to its western boundary, of several of the lodes of the Cockhill and Sunside Mines, which have been working for more than 20 years, and have yielded many hundreds of thousands of pounds worth of lead. In West Craven Moor, although not many of the lodes, comparatively speaking, have been worked, and only by shallow shafts and drifts, on account of the want of capital for pumping machinery, or bringing in drainage levels to develop them deeper, they have produced considerable quantities of ore. The West Craven Moor, like all the neighbouring mines—viz., the Cockhill and Sunside, Burhill, North Rake, Yorkshire, Appletreewick, and the Duke of Devonshire's Grassington mines, which have yielded enormous profits—are in the well-known mountain limestone. The lodes in West Craven Moor have been worked to depths varying from 10 to 15 and 20 fathoms below the surface; being composed of gossan, carbonate of lime, barites, carbonates of lead, and galena of high percentage; the close similarity of the mineral characteristics of the productive lodes of the district rendering their selection certain, and ensuring profitable mines being opened out on them. An adit, commenced many years since in the western ground, has been driven a long distance east on one of the lodes, from which many hundreds of tons of lead have been got. It should be driven with all possible force to a north and south lode, seen at the surface, producing good stones of ore. At such intersections cross-cuts should be put out; and as the depth will be about 50 fathoms, it is only reasonable to expect that the lodes will make great deposits of lead, as in the neighbouring mines.

Quite a new lode has been opened out, close to the north and south one just referred to, by a shaft sunk in it from the surface to a depth of 9 fms., and at little above the bottom thereof about 7 fms. have been driven on it, being from 4 to 6 ft. wide, composed of gossan, carbonate of lead, and galena, and altogethe fine loo lode indeed. I have no doubt as to this discovery being the top of a very great deposit of lead. It is very evident that it will much improve as deep it is driven: 20 tons of lead ore have already been got and sold from this shallow and limited working. This is, beyond all doubt, a good paying lode. The light thrown on the value of West Craven Moor, by the enormous quantities of lead that have been got from its lodes in the Sunside and Cockhill Mines close by, is of great importance. The lodes that have only been "scratched" over, so to speak, in West Craven Moor, have been worked in those mines to a depth of 100 fms., having at some points yielded as much as 8 tons of lead per fathom. A new steam-engine has just been fixed underground for working the courses of ore deeper. Some idea may be formed of the enormous quantities of lead that the Cockhill and Sunside Mines have produced from the fact of there being close upon nine miles of levels altogether upon the various lodes, and almost all the ground having been taken away from the bottom workings to the surface in many places, and for great lengths. It is the opinion of this miners of this district that West Craven Moor comprises equally valuable ground; many of the south lodes in the Sunside and Cockhill Mines, as well as others, going into it. The deep adit should be pushed forward with all speed west, to drain the cross-cuts therefrom, a dozen lodes, which will then be workable dry to depths of 50 and 60 fms. A great deal more might be said in favour of this undoubtedly most valuable property, but it is, in my opinion, unnecessary. With a moderate capital, and only commonly good judgment, more than one mine is to be opened out in this extensive grant to pay large profits in a comparatively short time.

PRANK PHILLIPS,

Mineral Agent to John Yorke, Esq., Bewerley Hall, Pateley Bridge, Yorkshire.

Report by DAVID WILLIAMS, Manager of Old Merryfield Mines, Pateley Bridge, Yorkshire.

I have again made an inspection of this property, which exceeds a mile in extent, and is about a mile in width, having the continuation throughout, to its western boundary, of several of the lodes of the Cockhill and Sunside Mines, which have been working for more than 20 years, and have yielded many hundreds of thousands of pounds worth of lead. In West Craven Moor, although not many of the lodes, comparatively speaking, have been worked, and only by shallow shafts and drifts, on account of the want of capital for pumping machinery, or bringing in drainage levels to develop them deeper, they have produced considerable quantities of ore. The West Craven Moor, like all the neighbouring mines—viz., the Cockhill and Sunside, Burhill, North Rake, Yorkshire, Appletreewick, and the Duke of Devonshire's Grassington mines, which have yielded enormous profits—are in the well-known mountain limestone. The lodes in West Craven Moor have been worked to depths varying from 10 to 15 and 20 fathoms below the surface; being composed of gossan, carbonate of lime, barites, carbonates of lead, and galena of high percentage; the close similarity of the mineral characteristics of the productive lodes of the district rendering their selection certain, and ensuring profitable mines being opened out on them. An adit, commenced many years since in the western ground, has been driven a long distance east on one of the lodes, from which many hundreds of tons of lead have been got. It should be driven with all possible force to a north and south lode, seen at the surface, producing good stones of ore. At such intersections cross-cuts should be put out; and as the depth will be about 50 fathoms, it is only reasonable to expect that the lodes will make great deposits of lead, as in the neighbouring mines.

Quite a new lode has been opened out, close to the north and south one just referred to, by a shaft sunk in it from the surface to a depth of 9 fms., and at little above the bottom thereof about 7 fms. have been driven on it, being from 4 to 6 ft. wide, composed of gossan, carbonate of lead, and galena, and altogethe fine loo lode indeed. I have no doubt as to this discovery being the top of a very great deposit of lead. It is very evident that it will much improve as deep it is driven: 20 tons of lead ore have already been got and sold from this shallow and limited working. This is, beyond all doubt, a good paying lode. The light thrown on the value of West Craven Moor, by the enormous quantities of lead that have been got from its lodes in the Sunside and Cockhill Mines close by, is of great importance. The lodes that have only been "scratched" over, so to speak, in West Craven Moor, have been worked in those mines to a depth of 100 fms., having at some points yielded as much as 8 tons of lead per fathom. A new steam-engine has just been fixed underground for working the courses of ore deeper. Some idea may be formed of the enormous quantities of lead that the Cockhill and Sunside Mines have produced from the fact of there being close upon nine miles of levels altogether upon the various lodes, and almost all the ground having been taken away from the bottom workings to the surface in many places, and for great lengths. It is the opinion of this miners of this district that West Craven Moor comprises equally valuable ground; many of the south lodes in the Sunside and Cockhill Mines, as well as others, going into it. The deep adit should be pushed forward with all speed west, to drain the cross-cuts therefrom, a dozen lodes, which will then be workable dry to depths of 50 and 60 fms. A great deal more might be said in favour of this undoubtedly most valuable property, but it is, in my opinion, unnecessary. With a moderate capital, and only commonly good judgment, more than one mine is to be opened out in this extensive grant to pay large profits in a comparatively short time.

DAVID WILLIAMS.

development of this undoubtedly very valuable property, the two principal points have been entirely neglected, being the bringing in of the deep adits—viz., the one westward, which will be over 40 fms. deeper than the present workings, and the Blackhill adit eastward—the former for opening out the Hardgate end lode on which it will be driven, and several parallel lodes to the north by cross-cuts; the latter for the deeper development of the two east and west lodes now worked, and our other parallel lodes south. The Blackhill adit will uncover the lodes 50 fathoms deep, and by a cross cut of not more than 60 fathoms, will intersect six east and west lodes. These lodes are in the mountain lime rock, precisely the same as the adjoining Cockhill and Sunside Mines, having also corresponding bearing and underlie, and in fact there being not a shadow of a doubt that they are the same lodes.

One very important point must not be lost sight of, which is so many north and south courses intersecting the east and west lodes, the former, no doubt, being feeders to the latter. Moreover, the north and south courses are known to make rich deposits of lead in lepidolite, and at the same time they offer every facility for cross-cutting to the former. These lodes in the neighbouring Sunside and Cockhill Mines have yielded most abundantly, in some points as much as 8 tons to the fathom to the depth of 100 fathoms, and there is no doubt they will be equally productive in West Craven Moor. I, therefore, strongly recommend driving the two deep adits, and putting out cross cuts to intersect the different lodes. The importance of such a deep drainage cannot be overestimated, as it will render available thousands of fathoms of ore ground to be worked without the aid of any machinery. In conclusion, I have no hesitation in saying that, seeing so many lodes in close proximity, with such facilities for opening them out, also taking into consideration the amount of lead ore got from the few fathoms of ground only worked on two of them, and to no greater depth than 9 fathoms, that the success of West Craven Moor appears to me to be a certainty.

R. SOUTHEY.

Latest Report by DAVID WILLIAMS, Manager of Old Merryfield Mines, near Pateley Bridge, Yorkshire.

Pateley Bridge, Yorkshire, 7th June, 1875.

Blackhill Level: This level is driven

Registration of New Companies.

The following joint-stock companies have been duly registered:—
WEST CRAVEN MOOR LEAD COMPANY (Limited).—Capital 30,000*l.*, in 10*l.* shares. To purchase mines in the township of Appleby-le-Wold, York, held under lease from the freeholder, John Yorke, of Bewerley Hall, York, for which the vendors are to receive 18,000*l.* in fully paid-up shares. The subscribers (who take one share each) are—E. Hilton Redfield, Clapham Park, gentleman; R. A. Silver-sides, Pinmerwood House, Pinner, gentleman; H. G. Sharp, The Wilderness, Tunbridge Wells, gentleman; J. C. West, Honour Oak Park, gentleman; J. B. Hart, St. Julian's road, Kilburn; C. J. St. Alphonse, jun., Beech House, Lough-ton, gentleman; and Granville Sharp, 2, Gresham Buildings, stockbroker. The qualification for a director is 25 shares, and the remuneration for the board is to be 150 guineas, to be increased to 300 guineas any year that the company pays 10 per cent. or more.

WEST SNOWDON SLATE COMPANY (Limited).—Capital 20,000*l.*, in 10*l.* shares. To carry into effect an agreement made between A. O. Hammond of the one part, and B. Balfour on behalf of the company, for the purchase of the Ffridd and Snowdon Slate Quarries, together with other lands in the county of Carnarvon, comprised in a lease from Sir R. B. W. Bulkeley to the Snowdon Slate Quarries Company (Limited). The subscribers are—H. A. Hammond, Lloyds, underwriter, 10; F. A. Tidd, Lloyds, 5; A. M. Campbell, Lloyds, underwriter, 5; G. B. Foster, Lombard court and Lloyds, 5; F. Dyer, jun., 18, Finch-lane, stockbroker, 5; J. Charlton, 25, Great Tower-street, merchant, 15; and B. Balfour, 11, Roode-lane, shipbroker. The directors will be Messrs. M. J. Charlton, W. R. Tidd, H. A. Hammond, D. Mackenzie, John Sercombe and A. C. Stearn.

J. P. WESTHEAD AND COMPANY (Limited).—Capital 400,000*l.*, in 10*l.* shares. To acquire the business of the firm of J. P. Westhead and Co., of Manchester and elsewhere. The subscribers are—W. B. Westhead, Altringham, 10; E. Hasle-ham, 49, Piccadilly, Manchester, 50; W. L. Royle, 49, Piccadilly, Manchester, 50; J. H. Goodwin, 49, Piccadilly, Manchester, 50; S. Staton, The Mount, Manchester, 50; E. Edge, 26, Bold-street, Manchester, 50.

ELROD AND ALMENARA LAND COMPANY (Limited).—Capital 162,100*l.*, in 10*l.* shares. To acquire the undertakings, land, &c., of the Almenara Land Company (Limited), including a concession granted by the Government of Spain for draining marshes at Almenara, Spain. The subscribers are—H. H. Gibbs, 15, Bishopsgate street; C. H. Goschen, 12, Austin-friars, 10; C. Lanyon, The Abbey, Antrim, 10; J. W. Birch, 8, St. Helen's-place, 10; J. G. Hubbard, 24, Prince's Gate, 10; Lord Napier and Ettrick, 40, Lancaster Gate, 10; G. E. Cockayne, College of Arms, 1.

VICTORIA HEMP AND COTTON TWINE SPINNING COMPANY (Limited).—Capital 10,000*l.*, in 1*l.* shares. This is a Manchester company.

OLD RADNOR LIME, ROADSTONE, AND GENERAL TRADING COMPANY (Limited).—Capital 10,000*l.*, in 10*l.* shares. To acquire from the Rev. Sir Gilbert F. Lewis, of Harpton Court, Radnor, the Traprock Roadstone Quarries and Lime Kilns at Old Radnor, and to carry on mining operations. The subscribers are—Charles Chambers, 3, Westminster Chambers, Victoria-street, contractor, 10; T. B. Stallard, Leominster, wine merchant, 5; R. D. G. Price, Nant-y-Goes, Radnorshire, 10; J. Robinson, Radnorshire, gentleman, 5; J. T. Southall, Leominster, draper, 5; E. H. Cheese, Kingston, Hereford, solicitor; Sir G. F. Lewis, Bart., Harpton Court, Old Radnor. The directors are not yet appointed, but the qualification is to be the holding of shares to the value of 300*l.*

GRAND HOTEL AND SAFE DEPOSIT COMPANY, MANCHESTER (Limited).—Capital 250,000*l.*, in 10*l.* shares. To carry on the business of hotel-keepers, and also to provide fire-proof buildings for the deposit of valuables. The subscribers (who take one share each) are—E. Yelton, Wyndham Villas, Totten-ham; W. A. Wheatley, 21, Bristol-court, Southwark Park; H. Stowman, 7, Albert-street, Kensington Park-road; J. Lewis, St. Paul's Churchyard; G. R. Browne, 10*l.*; Ironmonger-lane; J. Tipping, 7, Park-road, Crouch-end; P. Sleight, 5, Suffolk-street, Essex-road, N.

SAPPHIRE STEEL SYNDICATE (Limited).—Capital 50,000*l.*, in 10*l.* shares. To purchase and work certain British patents for improvements in the manufacture of steel, &c. The subscribers are—E. J. Payne, Seaforth House, Milverton, Warwickshire, 500; J. Ascough, The Tower, Handsworth, 500; J. P. Sharp, Rose Cottage, Birmingham, 500; W. L. Harrison, the Uplands, Knowle, 40; Samuel Saunders, 29, Colebrook-row, Birmingham, 50; J. Richards, Wednesbury, 50; and T. Parker, Handsworth, 20.

HULL STEAM SHIPPING COMPANY (Limited).—Capital 50,000*l.*, in 10*l.* shares. To carry on the general business of shipowners. The first six subscribers are—Messrs. C. E. Pearson, C. S. Todd, H. Lambert, J. R. Firth, 10*l.*; W. Davis, and J. Hayner (all of Hull).

W. T. HENLEY AND COMPANY (Limited).—Capital 500,000*l.*, in shares of 10*l.* and 1*l.* each. To purchase the goodwill of telegraph engineers and contractors business now rested in the trustee under the liquidation of the affairs of Mr. Henley. The subscribers (who take one share each) are—Frances Moon, 73, Coleman-street; Charles Chambers, 3, Westminster Chambers, Victoria-street, contractor, 10; T. B. Stallard, Leominster, wine merchant, 5; C. R. Dyer, Lloyds, 5; J. B. Byers, Priory Cottage, Peckham; J. R. Forster, 11, Abenbury-lane; J. Barker, 168, Alexander road, St. John's Wood; and J. W. Roberts, 1, Selhurst Park-terrace, South Norwood.

BRADFORD LIBERAL CLUB BUILDINGS COMPANY (Limited).—Capital 40,000*l.*, in 50*l.* shares. To acquire land at Bradford for the erection of a club. The subscribers (who take five shares each) are—G. P. Beaumont, Bradford; N. Duke, Horton, Bradford; W. C. Ferrand, Manningham; H. Illingworth, Manningham; R. Kelly, Bradford; Titus Salt, jun., Milner Fields, York; and C. Turner, Calverley, York.

SCULCOATES IRONWORKS (Limited).—Capital 20,000*l.*, in 5*l.* shares. To carry into effect an agreement made between W. R. Barratt, of the one part, and W. S. Bruce, on behalf of the company, for the purchase of the East Riding Iron-works at Hull, and to carry on business as smelters, engineers, &c. The subscribers (who take one share each) are—E. Kriens, 62, Malpas road, New Cross, merchant; W. Henry, 13, King's place, Newton-on-Cairn Causeway, sanitary engineer; J. Wilkinson, 45, Downham-road, merchant's clerk; F. Bullock, 11, Canbury Park, traveller; W. S. Bruce, Priory road, Haworth Hill, accountant; W. H. Costello, 3, King-street, Cheapside, clerk; J. R. B. Chinnery, Bowesworth Lodge, Willesden, engineer. The qualification for director is the holding of 200*l.* shares in the undertaking. No appointments are yet made.

NOXIOUS FUMES FROM SMELTING WORKS.—Early next session the Duke of Northumberland will move for a Royal Commission to enquire into the working and management of works and manufactures smelting, burning, or converting ores and minerals, by which sulphurous acid, sulphuretted hydrogen, and ammoniacal or other gasses are given off; to ascertain the effects produced thereby on the health of animal and vegetable life; and to report upon the best means to be adopted for the prevention of injury thereto arising from the exhalation of such acids and gases, and upon the legislative measures, if any, required for this purpose.

RESOURCES OF TURKEY.—Capt. Tyler, Chief Inspector of Rail-ways, Board of Trade, has returned to London from Turkey. He inspected about 900 miles of railway in that country for the Turkish Government, in company with Mr. Barlow and Mr. Vignoles, in order to report upon the requirements necessary to be executed before they could be definitely received by that Government, and upon the cost of such requirements. That work completed, he undertook, at the special request of the Grand Vizier, in company with Mr. Vignoles, M. Fradet, secretary, and Mr. Payne, to ride through Bosnia and to examine the nature and resources of the country. This journey was performed on horseback, and extended over 19 days, during which about 400 miles were traversed, principally of mountainous country, impassable for wheeled vehicles. To carry tents, cuisine, baggage, servants, &c., upwards of 50 horses were employed daily, and it was only on Friday last that Banya-luka was reached. From Banya-luka to Dobrovar, near the Austrian frontier, there remained 102 kilometres of isolated railway to be inspected, which was performed on Saturday, various ironworks and mines of iron, mercury, &c., were inspected, and detailed reports will be made to the Turkish Government.

GOLD IN INDIA.—The Calcutta correspondent (July 6) of the *Times* writes—“The gold fields of South-East Wynaad form the subject of an interesting paper by Mr. W. King, published in the last number of the Records of the Geological Survey of India. Mr. King is inclined to estimate the future prospects of these gold fields favourably, although he makes it quite clear that Wynaad, unlike California and Australia, offers no opening for a penniless adventurer. Gold washing has been carried on by the natives of the country from time immemorial, but so poor are the alluvial deposits that four annas (sixpence) worth of the precious metal is considered an excellent return for a day's labour, and a native will not wash for gold as long as he can get employment on the coffee plantation, where he earns five annas. No large nuggets have been found, and the washings depend entirely upon the small supply of gold swept down the hill sides every year from the wear of the quartz rocks. It is to these quartz rocks that Wynaad must look if it is ever to become a great gold-producing country, and to work them capital, expensive machinery, and skilled management are absolutely necessary. A commencement has already been made by the formation of the Alpha Gold Company, under the direction of a gentleman of Australian experience, so that we may anticipate an early settlement of the question whether quartz reef mining can be profitably carried on in that part of India. Mr. King thinks that quartz crushing should be a success. With machinery and appliances it will pay, he says, if only 3 dwt. of gold are always got from the ton of quartz; and the result of a number of trials made by him on various reefs has been to give an average proportion of 7 dwt. to the ton of rock. The ore obtained from the matrix is in fineness inferior to that of Australia, but compares favourably with Californian reef gold.”

THE STANNARIES COURT frequently comes in for a great deal of odium, owing very often to shareholders not facing their difficulties and the capital necessary to face a concern from its operations. Therefore, when good service is rendered it is only right and fair that the fact should be made known. Let me give an instance. In December last it was determined to wind up the affairs of Wheal Osborne in the Court, and since that time the whole of the liabilities, amounting to 161*l.*, 19*s.*, 10*d.*, have been paid off. To do this a call of 3*l.* per share was necessary, and this amount was realized on about 470 out of the 1024 shares, which originally constituted the company. Such a result is mainly due to the exertions of Mr. C. W. Clinton, the official liquidator, and the creditors are certainly indebted to him for the business-like way in which the winding up has been conducted, for they would undoubtedly have had to wait a much longer time if the winding up had gone on in the usual course—*Western Daily Mercury*.

Vice-Chancellor Malina has appointed Mr. Edward Gustavus Clarke (Barnard, Clarke, and Co.), of Lothbury, and Mr. James Milne, of Bristol, official liquidators (under the order for voluntary winding-up) of Morgans and Guard (Limited); and Mr. Edward Gustavus Clarke has also been appointed official liquidator of the *Ey* Paper Company (Limited).

Mining Correspondence.

BRITISH MINES.

ARERDAUNANT.—S. Toy, Aug. 4: We are making fair progress in sinking and stoning the bottom of No. 1 adit level; the productive part of the lode is 2 ft. wide, worth 8*l.* per fm. for lead. The stop in roof of this level is worth 17*l.* per cubic fathom for lead. We have been obliged to repair our crusher, which is now finished, and our dressing, with all the surface operations, progressing and working well.

BEDFORD CONSOLS.—George Rowe, Joseph Mitchell, August 3: The lode in the winze sinking below the 67 is over 6 ft. wide, of a very masterly character, producing very strong mundie, with fine stones of ore—altogether of a very kindly appearance. The different stope working in the shallow levels, are producing good arsenical mundie to the value of 8*l.* or 10*l.* per fathom. All other points are with out change since last reported on.

BEDFORD UNITED.—W. Phillips, Aug. 5: In the 115 east the lode is 4 ft. wide, worth 5 tons of ore, or 20*l.* per fathom. There is no change in the sump winze to notice. The 115 west is being continued by the side of the lode, which is letting out a great quantity of water. The rise in back of this level, just west of the shaft, is communicated to the stop in the midway west, and the lode at this point at present is worth over 40*l.* per fathom; driving by the side of the lode is continued in the 108 east. The winze in the bottom of this level is worth about 20*l.* per fathom, and is laying open profitable ground for stoning. The ground in the cross-cut from the 103 west is highly mineralised, indicating a near approach to the north part of the lode.

BLUE HILLS.—S. Bennets, A. Gripe, July 31: The Pink lode in the 50, east Polyear shaft, is from 8 to 10 ft. wide, of a most promising character, and although not at present very valuable, yet it is of low quality tintstuff throughout.

The ground is somewhat hard, but judging from the appearance of the lode and the dip of the ground in a pitch just over this end at the 40, we hope soon to see an improvement both in the quality of the lode and in the killas about it. There is no very material change to notice in the tribute department.

BOG.—W. T. Harris, J. Barkell, Aug. 4: The 175 east, on the south lode, is looking a little better than it did last week, now worth 35 cwt. of lead ore per fathom.

The end driving west on the main lode, in this level, is without change to notice, still producing a little lead and mundie.

The 163 west, on the main lode, is again improving for ore, but we shall have to suspend the driving for a short time, in order to cut ground in the side of the level for a sump head for the new winze. The lode in the winze sinking below this level is worth for lead and mundie 20*l.* per fathom. The lode in the rise in back of this level has much improved, now worth 30*l.* per fathom for lead. The 80, driving east and west from Buntin's shaft, and also the rise in the back, continues to open out rich mundie ground in places, worth fully 3 tons per fathom. Our tribute pitches are yielding lead and mundie.

BOG.—W. T. Harris, J. Barkell, Aug. 4: The 175 east, on the south lode, is looking a little better than it did last week, now worth 35 cwt. of lead ore per fathom.

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In the 35 north the men are driving by the side of the lode, and the same in the 35 south, and, according to indications, the lode is improving in both ends. In the 25 north we are driving by the side of the lode. The cross-cut going west of the 25 south end is in about 4 ft., but no lode or branch has yet been met with. The 25 in the tribute pitches is looking much the same in value as stated in the report of July 24.

NEW CONSOLS.—R. Pryor, Thomas Jenkin, H. Vial, Aug. 3: No particular change has taken place in the underground department during the past week, with the exception of the lode in the 50, east of Phillips's engine-shaft, where it has undergone a very favourable change, and the end is letting out water freely, which above all the ovens, calciners, and tanks are working most satisfactorily, and the precipitate coming out quite equal to our expectations for the quantity of stuff treated.

NEW HENDRA.—Wm. Rowe, Aug. 2: Pay and setting report of the 31st ult. The deep adit set to drive by six men, for the month, at 5/- per fm.; the lode in the end yielding a little copper ore, the water flowing from the end freely, and the ground looking generally favourable for mineral. The recent changes in the ground lead us to hope soon to meet with one of the lodes ahead of us.

NEW ROSEWARNE.—E. Hosking, W. Bennets, July 31: To drive the 67, west of Pool's shaft, by six men, at 5/- per fathom; the lode is 2½ ft. wide, producing stones of copper ore, but at present the lode is a little disordered; we expect that it will improve as we near the ore ground gone down below the 68. To drive the 68, west of Pool's shaft, by four men, at 3/- per fathom; the lode is 2 ft. wide, and has a kindly appearance, but is not looking so well for copper, now worth 5/- per fathom. To rise or stop above the 58, west of Pool's shaft, by four men, at 1/- per fathom, the lode is worth 6/- per fathom.

NEW SOUTH MERLILYN.—R. Rowlands, Aug. 5: In the sink below the 50 level the lode did not look so well after my last report, but I am glad to say it is now looking much better. The joint is 14 in. wide, all good saving stuff, looking very promising. In the rise in the roof of the level we have splendid ground, producing nice lumps of lead.

NORTH POOL.—W. C. Vivian, E. Clymo, Aug. 5: Our prospects are improving. The lode has increased still further in size, being now 5 ft. wide, and yielding more blende, lead, and copper throughout than it has done before. If these indications do not point to a course of copper ore close at hand this mine must prove an exception to the rule established by the experience and observation of all practical miners in this district.

NORTH PRINCE PATRICK.—John Jones, Aug. 4: Engine-Shaft: The ground in the forepart of the level is getting a little firmer, but is as yet too sandy to yield lead in large quantities, although we get more or less at every shift. —Eastern Shaft: The forepart of the level from this shaft continues hard for driving, but still, the lode is getting stony.

OLD TINCROFT CONSOLS.—James Pope, Aug. 4: In the 10, west of Diamond shaft, the lode is worth for the 15/- per fathom. In the 30 west the lode is worth 7/- per fathom. In clearing the engine-shaft, our progress has been rather slow on account of so much timber being required; but I am glad to say the shaft is much smaller in size, and does not require much timber. The masons are getting on with the engine house, but not quite as fast as I wish.

OLD TREBURGETT.—Wm. Hancock, Wm. T. Bryant, Aug. 5: The 70 is commenced with the level coming towards it from the winze sunk under the 60. The 30, on main lode, the lode is 4 ft. wide, worth 5 tons of mundic per fathom. In Rowe's pitch in the bottom of the 30, on main lode, west of Field's shaft, the lode is 3 ft. wide, producing good tinstuff, a very promising lode. We expect to hole the cross-cut from Bucking-house to main lode in a few days. Jones's pitch is stopped for a time. We are getting on with the engine as fast as possible.

PARYS MOUNTAIN.—T. Mitchell, August 2: Setting Report: The 90 crosses south, by six men, the month, at 10/- per fathom; the ground is getting a little easier for cutting, and we hope that the men will make good progress in driving. The intermediate level over the 90 to drive west, by four men, at 9/- per fm.; this drive is to prove the lode further west, and to open up ground for stopes; at present it is worth 3 tons of copper ore and 1 ton of sulphur per fathom. Stopes at the intermediate level, east and west of winze, by six men, at 6/- per fathom; the lode yields 5 tons copper ore and 2 tons sulphur per fathom. Stopes at the 80, west of cross-course, by eight men, at 6/- per fathom, yielding 5 tons copper ore and 2 tons sulphur per fathom. Stopes at the 65, east of rise, by six men, at 6/- per fathom, yielding 5 tons of copper ore and 1 ton of sulphur per fathom. Stopes west of winze, by six men, at 6/- per fathom, lode worth 4 tons copper ore and 1 ton sulphur per fathom. Stopes east of winze, by six men, at 6/- per fathom, and the lode worth 5 tons copper ore and 1 ton sulphur per fathom. The 65, west of cross-cut, by four men, at 7/- per fathom, lode worth 1 ton of good copper ore per fathom, and looking very kindly. We have put on two more men in this end to hasten the driving and prove the lode in connection with a strong cross-joint, which is ahead of this point a few fathoms. The 45, east of cross-course, has improved lately; we have put the men to strip down the part of the lode now standing to further prove its value. We expect this place will soon open out good ground for stopping. We have set 12 tribute pitches, to 19 men, at the usual prices; some of the tributaries have left, and gone to work elsewhere, as is often the case in summer, so there will be a falling off in the returns of tributaries' ore. We are clearing up the precipitation pits, and hope to get the copper precipitate ready for our next sampling.

PARYS MOUNTAIN.—T. Mitchell, Aug. 5: I am glad to say the ground in the 90 cross-cut south is getting easier for cutting, and that better progress is now being made in driving. The 65, west of cross-cut, is producing a little saving work for copper, and lode looking kindly. The 45, east of cross-course, is turning out about 2 tons of copper ore and a little sulphur per fathom. The lode is very hard at this point, and when the ground gets easier we expect the lode will further improve. Some of the stopes are not looking so well this week, the lode being mixed more than usual with the country rock.

PATELEY BRIDGE E.—C. Williams, Aug. 4: Discovery: The vein in the cross-cut north in the 10, west from engine-sump, is 3 ft. wide, and worth 10/- per fathom for lead ore. The vein in the rise over the back of this level is 4 ft. 6 in. wide, and worth 20/- per fathom for lead ore. The above bargains are being worked by 10 men, at about 50/- per fathom, including all costs. The 20 cross-cut south-west, to cut Dickson's vein, is still very wet; the ground in the end is composed of limestone and branches of spar, intermixed with lead ore. This cross-cut will intersect four known and productive veins—Dickson, Lump, Gulf, and New Discovery—all of which yielded an immense quantity of ore over the Horse level, and were left rich going down under the same. The east cross-cut, also in the 2, to cut Fielding, Sir Thomas, and other veins is being carried on with all possible dispatch; we have about 7 fms. more to drive to reach the rich course of ore gone down in Fielding's sump; worth from 20/- to 30/- per fathom. —Engine-Shaft: In sinking this shaft, now down between 6 fms. and 7 fms. under the 30, it is proposed to sink 8 fms. further, making a total depth of 15 fms., and drive out a cross-cut to a lode gone down under the 20, worth 50/- per fathom. The lode of ore gone down in the north end of this shaft will yield about 4 tons of lead ore per fathom. —Pringsap: The vein in this level is over 6 ft. wide, all saving work for the crusher—Blue Rigs and Sir Thomas Veins: I cannot observe any change calling for remark since my last. The pumping and drawing-engine is in good repair, and working satisfactorily.

PEDDAN DRAE UNITED.—William Tregay, William Pridgeaux, John Pope, July 31: Sump: The lode in the 160 west end is still divided into branches, producing good stones of tin. In the 150 west winze the lode (Martin's) is 9 ft. wide, worth 20/- per cubic fathom. In the 150 west end the lode (Martin's) is worth 15/- per fathom. In the 140 west end the lode (Martin's) is worth 10/- per fm.—Cobblers': In the 120 west end the lode (Martin's) is worth 8/- per fathom. —Cardox's: In the 100 west end the lode (north) is worth 10/- per fathom. In the 80 west end the lode (north) is worth 8/- per fathom. In the 80 west end the lode (north) is worth 15/- per fathom. In the 70 west end the lode (north) is worth 16/- per fathom. In the 60 west end the lode (north) is worth 15/- per fathom. In the 50 west end the lode (north) is worth 6/- per fathom. —Critchley's: 40 to 90: We are cutting down the shaft here as rapidly as possible, but the ground still requires heavy timbering. The new lode in the 40 west is still very much disordered by the cross-course, but produces good stones of tin. On the east side we have of yet opened it, having some feet further to cross-cut. —The 140 Cross Cut: Here we are making very good progress. We have sold this day at Trethevelian 12 tons 9 cwt. 0 qrs. 27 lbs. of black tin, at 48/- per ton. —See 3d. 7d. No other changes to report.

PENHALLS.—S. Bennets, W. Higgins, July 31: The 70 west continues to yield small quantities of tinstuff. The 60 east is worth 7/- per fathom, and a stop in the back of this level is worth 8/- per fathom. The 60 north is without change. The same remark applies to the 50 north. Four stopes in the back of the 50 east are worth respectively 7/-, 9/-, 20/-, and 25/- per fathom. The 50 west is worth 12/- per fathom, and a stop in the back of this level is worth 12/- per fathom. The 40 east 8/- per fathom, and the 30 east, on the north lot, is poor. A stop in the bottom of this level is worth 12/- per fathom.

PENNERLEY.—W. T. Harris, J. Delbridge, Aug. 4: Engine-Shaft: The lode in the 130 west is ½ ft. wide, carbonate of lime, with a little lead ore. The same may be applied to the 120, driving west. The lode in the 100 west, on the east driving east, is producing 1 ton of lead ore per fathom. The lode in the 80, driving east, yielding some good stones of lead, and very promising for an improvement. The lode in the winze sinking below the 70, on Warm Water ledge, is very hard; it is 3 tons of lead per fathom, and is opening out profitable stopes. The lode in the 60 cross-cut is of the same character as last reported. The lode in the 40, driving west, yields occasional stones of lead; we are expecting an improvement here. The ground in the 25 cross-cut is without lode. We have six stopes at work in this portion of the mine, worth from 1½ to 3 tons of lead ore per fathom. —Potter's Pit: The 75 fm. level cross-cut is in ground below the 65, the lode is worth 4½ tons of lead per fathom. The lode in the winze sinking below the 65 is worth 2 tons per fathom, and is down 4 fathoms. In the cross-cut driving south at this level we have intersected the Big Ore lode, which is upon. There are four stopes at work in this section of the mine, worth as opened average 1½ ton of lead per fathom. No other change worthy of notice.

PERTH NIGEL.—J. Manley, Aug. 4: The 55 east now appears to be entering the ram of ore driven through in the 44: we have a branch of lead in the bottom of the 22 in. wide, and looking very promising. Other points are yielding fair quantities of ore. I send out samples of 45 tons of lead to-morrow for sale on the 15th inst. Machinery working well.

PROVIDENCE MINES.—William Hollow, Samuel Rogers, July 30: The following is a copy of our settings for four weeks ending Aug. 27: Hawk's Shaft (under contract): Sinking below the 46, by six men, at 13/- per fathom—down 7 fms.; men, at 2/- per fathom; lode worth 10/- per fathom. The 46, to drive east, by six men, at 2/- per fathom; lode worth 8/- per fathom. The 46, to drive west, by four men, at 2/- per fathom; lode worth 8/- per fathom; lode worth 5/- per fathom. The 46, to drive west of the floor, on the south lode, by two men, at 3/- per fathom; lode worth 4/- per fathom. The 32, to drive east, by four men, at 8/- per fathom; lode worth 6/- per fathom. The 32, to drive west, by two men, at 8/- per fathom; lode small. A winze to sink below the 36, east of the west of the shaft, by four men, at 6/- per fathom; lode worth 5/- per fathom. The

26, to drive west, on the south lode, by two men, at 3/- 10s. per fathom; lode unproductive. —Higgs's Shaft: A cross-cut to drive south at the 75, by four men, at 9/- per fathom. The 85, to drive west, on the new north lode, by two men, at 5/- per fathom; there is not enough opened on it to ascertain its value, producing good stones of copper ore. There are 51 men on tribute, at an average of 14s. 6d. in 11, at 40/- per ton for the tin.

REIDOL.—John Ridge, July 31: The cross-cut driving south at the 30 is extended 2 fms. 3 ft. in very strong slate rock, the fissures of which are coated with ore: except the lode in the 50, east of Phillips's engine-shaft, where it has undergone a very favourable change, and the end is letting out water freely, which above all the ovens, calciners, and tanks are working most satisfactorily, and the precipitate coming out quite equal to our expectations for the quantity of stuff treated.

NEW HENDRA.—Wm. Rowe, Aug. 2: Pay and setting report of the 31st ult. The deep adit set to drive by six men, for the month, at 5/- 10s. per fm.; the lode in the end yielding a little copper ore, the water flowing from the end freely, and the ground looking generally favourable for mineral. The recent changes in the ground lead us to hope soon to meet with one of the lodes ahead of us.

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OLD TREBURGETT.—Wm. Hancock, Wm. T. Bryant, Aug. 5: The 70 is commenced with the level coming towards it from the winze sunk under the 60.

The 30, on main lode, the lode is 4 ft. wide, worth 5 tons of mundic per fathom. In Rowe's pitch in the bottom of the 30, on main lode, west of Field's shaft, the lode is 3 ft. wide, producing good tinstuff, a very promising lode. We expect to hole the cross-cut from Bucking-house to main lode in a few days. Jones's pitch is stopped for a time. We are getting on with the engine as fast as possible.

PARYS MOUNTAIN.—T. Mitchell, August 2: Setting Report: The 90 crosses south, by six men, the month, at 10/- per fathom; the ground is getting a little easier for cutting, and we hope that the men will make good progress in driving. The intermediate level over the 90 to drive west, by four men, at 9/- per fm.; this drive is to prove the lode further west, and to open up ground for stopes; at present it is worth 3 tons of copper ore and 1 ton of sulphur per fathom. Stopes at the intermediate level, east and west of winze, by six men, at 6/- per fathom; the lode yields 5 tons copper ore and 2 tons sulphur per fathom. Stopes at the 80, west of cross-course, by eight men, at 6/- per fathom, yielding 5 tons copper ore and 2 tons sulphur per fathom. Stopes at the 65, east of rise, by six men, at 6/- per fathom, yielding 5 tons of copper ore and 1 ton of sulphur per fathom. Stopes west of winze, by six men, at 6/- per fathom, and the lode worth 4 tons copper ore and 1 ton sulphur per fathom. Stopes east of winze, by six men, at 6/- per fathom, and the lode worth 5 tons copper ore and 1 ton sulphur per fathom. The 65, west of cross-cut, by four men, at 7/- per fathom, lode worth 1 ton of good copper ore per fathom, and looking very kindly. We have put on two more men in this end to hasten the driving and prove the lode in connection with a strong cross-joint, which is ahead of this point a few fathoms. The 45, east of cross-course, has improved lately; we have put the men to strip down the part of the lode now standing to further prove its value. We expect this place will soon open out good ground for stopping. We have set 12 tribute pitches, to 19 men, at the usual prices; some of the tributaries have left, and gone to work elsewhere, as is often the case in summer, so there will be a falling off in the returns of tributaries' ore. We are clearing up the precipitation pits, and hope to get the copper precipitate ready for our next sampling.

PARYS MOUNTAIN.—T. Mitchell, Aug. 5: I am glad to say the ground in the 90 cross-cut south is getting easier for cutting, and that better progress is now being made in driving. The 65, west of cross-cut, is producing a little saving work for copper, and lode looking kindly. The 45, east of cross-course, is turning out about 2 tons of copper ore and a little sulphur per fathom. The lode is very hard at this point, and when the ground gets easier we expect the lode will further improve. Some of the stopes are not looking so well this week, the lode being mixed more than usual with the country rock.

PATELEY BRIDGE E.—C. Williams, Aug. 4: Discovery: The vein in the cross-cut north in the 10, west from engine-sump, is 3 ft. wide, and worth 10/- per fathom for lead ore. The vein in the rise over the back of this level is 4 ft. 6 in. wide, and worth 20/- per fathom for lead ore. The above bargains are being worked by 10 men, at about 50/- per fathom, including all costs. The 20 cross-cut south-west, to cut Dickson's vein, is still very wet; the ground in the end is composed of limestone and branches of spar, intermixed with lead ore. This cross-cut will intersect four known and productive veins—Dickson, Lump, Gulf, and New Discovery—all of which yielded an immense quantity of ore over the Horse level, and were left rich going down under the same. The east cross-cut, also in the 2, to cut Fielding, Sir Thomas, and other veins is being carried on with all possible dispatch; we have about 7 fms. more to drive to reach the rich course of ore gone down in Fielding's sump; worth from 20/- to 30/- per fathom. —Engine-Shaft: In sinking this shaft, now down between 6 fms. and 7 fms. under the 30, it is proposed to sink 8 fms. further, making a total depth of 15 fms., and drive out a cross-cut to a lode gone down under the 20, worth 50/- per fathom. The lode of ore gone down in the north end of this shaft will yield about 4 tons of lead ore per fathom. —Pringsap: The vein in this level is over 6 ft. wide, all saving work for the crusher—Blue Rigs and Sir Thomas Veins: I cannot observe any change calling for remark since my last. The pumping and drawing-engine is in good repair, and working satisfactorily.

PEDDAN DRAE UNITED.—William Tregay, William Pridgeaux, John Pope, July 31: Sump: The lode in the 160 west end is still divided into branches, producing good stones of tin. In the 150 west winze the lode (Martin's) is 9 ft. wide, worth 20/- per cubic fathom. In the 150 west end the lode (Martin's) is worth 15/- per fathom. In the 140 west end the lode (Martin's) is worth 10/- per fm.—Cobblers': In the 120 west end the lode (Martin's) is worth 8/- per fathom. —Cardox's: In the 100 west end the lode (north) is worth 10/- per fathom. In the 80 west end the lode (north) is worth 15/- per fathom. In the 70 west end the lode (north) is worth 16/- per fathom. In the 60 west end the lode (north) is worth 6/- per fathom. —Critchley's: 40 to 90: We are cutting down the shaft here as rapidly as possible, but the ground still requires heavy timbering. The new lode in the 40 west is still very much disordered by the cross-course, but produces good stones of tin. On the east side we have of yet opened it, having some feet further to cross-cut. —The 140 Cross Cut: Here we are making very good progress. We have sold this day at Trethevelian 12 tons 9 cwt. 0 qrs. 27 lbs. of black tin, at 48/- per ton. —See 3d. 7d. No other changes to report.

PENHALLS.—S. Bennets, W. Higgins, July 31: The 70 west continues to yield small quantities of tinstuff. The 60 east is worth 7/- per fathom, and a stop in the back of this level is worth 8/- per fathom. The 60 north is without change. The same remark applies to the 50 north. Four stopes in the back of the 50 east are worth respectively 7/-, 9/-, 20/-, and 25/- per fathom. The 50 west is worth 12/- per fathom, and a stop in the back of this level is worth 12/- per fathom. The 40 east 8/- per f

AUG. 7, 1875.

mediate future of the tin trade seems to depend on whether any of the big holders of foreign tin are determined or compelled to sell out, and so face their loss at once. Tin is now a little firmer.—*West Briton*.

** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains: Original Correspondence—On the Anthracite Coal of Demonte, near Cuneo, in the Italian Alps (Chev. W. P. Jervis); Mining in India; Coal Beds of East Canyon and Rush Valley (W. Bredeley); Mining in South Australia; Mining in Queensland; Mines and Mining at Lake Superior; Flagstaff Mining Company; Cardiff and Swansons Smokeless Steam Coal Company (H. R. Evans); Intercommunication in Railway Carriages; Draining Mines—Steam Pumps; Divining Rod (R. Symons, E. Skewes); Educational Mineralogy (T. A. Readwin); West Esquel Lie Mining Company; Auditors of Mining Companies; Grogwynion Lead Mining Company; West Maria and Fortescue; West Chiverton Mining Company (H. Mansell); Javall and Chon-tales Mining Companies—Foreign Mining and Metallurgy—Decline in the Value of Quicksilver—Mining in Nevada—the Comstock Lode—Gryll's Annual Mining Sheet—Mineral Resources of the South-West of Ireland, No. XVI.—Australian Mines Reports—Foreign Mines Reports—Direct-Acting Steam Pump (illustrated), &c.—Meetings of the London and County Banking, West Tankerville, Wheal Crebor, Manx Silver-Lead Mineral, Tylwyd, and Rockhope Valley Companies.

The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, AUG. 6, 1875.

| | COPPER. | s. d. | s. d. | s. d. | IRON. | per ton. | s. d. | s. d. | s. d. | BARS. | per lb. | |
|---|---------|-------|-------|-------|-------|----------|-----------------------------|-------|-------|-------|---------|----|
| Best selected—p. ton | 88 | 0 | 0 | 88 | 10 | 0 | Bars Welsh, in London | 7 | 15 | 0 | 8 | 0 |
| Tough cake and tile | 88 | 0 | 0 | 87 | 0 | 0 | Do., to arrive | 7 | 15 | 0 | 7 | 17 |
| Sheathing & sheets | 91 | 0 | 0 | 93 | 0 | 0 | Nail rods | 8 | 10 | 0 | — | — |
| Bolts | 92 | 10 | 0 | 93 | 0 | 0 | , Staffd. in London | 8 | 15 | 0 | 9 | 10 |
| Bottoms | 95 | 0 | 0 | — | — | — | Bars ditto | 9 | 0 | 0 | 9 | 5 |
| Old | 80 | 0 | 0 | — | — | — | Hoops | 10 | 5 | 0 | 10 | 10 |
| Australian, Wallaroo | 90 | 0 | 0 | 91 | 10 | 0 | Hoops | 8 | 5 | 0 | 9 | 5 |
| ditto other brands | 86 | 0 | 0 | 88 | 10 | 0 | Hoops | 9 | 5 | 0 | 11 | 0 |
| Chili bars, g.o.p. | 79 | 0 | 0 | 80 | 0 | 0 | Sheets, single, & plates | 15 | 0 | 12 | 0 | 0 |
| Tubes | 0 | 0 | 11 | 13 | — | 0 | Pig No. 1, in Wales | 5 | 0 | 6 | 10 | 0 |
| — | 0 | 1 | 0 | — | — | — | Refined metal, ditto | 7 | 0 | 0 | 8 | 0 |
| — | — | — | — | — | — | — | Bars, common, ditto | 7 | 5 | 0 | 7 | 10 |
| — | — | — | — | — | — | — | Do., merchant f.o.b. { | 7 | 15 | 0 | 8 | 0 |
| — | — | — | — | — | — | — | in Tyne or Tees | 7 | 15 | 0 | 8 | 0 |
| Sheets | 93 | 4 | — | 94 | 1 | — | Do., railway in Wales | 6 | 10 | 0 | 7 | 0 |
| Wire | 93 | 4 | — | 94 | 1 | — | Do., Swed. in London | 15 | 0 | 15 | 10 | 0 |
| Tubes | 93 | 4 | — | 94 | 1 | — | To arrive | 15 | 0 | 0 | — | — |
| Yellow metal sheathing | 75 | 4 | — | 80 | — | — | Pig. No. 1, in Clydesdale | 3 | 0 | 3 | 8 | 0 |
| Sheets | 75 | 4 | — | 80 | — | — | Do., f.o.b. Tyne or Tees | 2 | 15 | 0 | 3 | 0 |
| SPELTER. | — | — | — | — | — | — | Do., Nos. 3, 4, f.o.b., do. | 2 | 13 | 0 | 2 | 15 |
| foreign on the spot. | 23 | 15 | 0 | 24 | 0 | 0 | Railway chairs | 4 | 0 | 4 | 10 | 0 |
| — | — | — | — | — | — | — | spikes | 12 | 0 | 0 | 13 | 0 |
| ZINC. | — | — | — | — | — | — | Indian Charcoal Pigs, | — | — | — | — | — |
| In sheets | 29 | 10 | 0 | 30 | 0 | 0 | in London, p. ton | — | — | — | — | — |
| TIN. | — | — | — | — | — | — | STEEL. | — | — | — | — | — |
| English blocks | 2 | 8 | 0 | 83 | 0 | 0 | Swed. in kegs (rolled) | — | — | — | — | — |
| Do. bars (in brls.) | 83 | 0 | 0 | 84 | 0 | 0 | Ditto (hammered) | 19 | 5 | 0 | — | — |
| Do. refined | 84 | 0 | 0 | — | — | — | Ditto, in faggots | 20 | 0 | 0 | — | — |
| Bancos | 80 | 0 | 0 | 81 | 0 | 0 | English, spring | 18 | 0 | 0 | 22 | 0 |
| Straits | 80 | 0 | 0 | — | — | — | LEAD. | — | — | — | — | — |
| Australian | 76 | 0 | 0 | 77 | 0 | 0 | English Pig, com. | 22 | 5 | 0 | 22 | 10 |
| TIN-PLATES.* | — | — | — | — | — | — | Ditto, L.B. | 22 | 5 | 0 | 22 | 10 |
| IC Charcoal, 1st qua | 21 | 0 | 10 | 12 | 0 | — | Ditto, W.B. | 23 | 0 | 0 | 23 | 10 |
| IX Do., 1st quality | 1 | 16 | 0 | 18 | 0 | — | Ditto, sheet | 23 | 0 | 0 | — | — |
| IX Do., 2d quality | 1 | 8 | 0 | 9 | 0 | — | Ditto, red lead | 24 | 0 | 0 | — | — |
| IX Do., 2d quality | 1 | 14 | 0 | 15 | 0 | — | Ditto, white | 30 | 0 | 0 | 32 | 0 |
| IC Coke | 1 | 3 | 0 | 6 | 0 | — | Ditto, shot | 26 | 0 | 0 | — | — |
| IX Ditto | 1 | 9 | 0 | 13 | 0 | — | Spanish | 21 | 10 | 0 | 21 | 15 |
| Canadas plates, p. ton | 15 | 0 | 15 | 10 | 0 | — | QUICKSILVER (p. bot.) | 10 | 0 | 0 | — | — |
| Ditto, st. works | 14 | 10 | 0 | 15 | 0 | — | — | — | — | — | — | — |
| * At the works, 1s. to 1s. 6d. per ton less. | — | — | — | — | — | — | Add 6s. for each. | — | — | — | — | — |
| Tin-plates 2s. per box below tin-plates of similar X brand. | — | — | — | — | — | — | — | — | — | — | — | — |

REMARKS.—The Bank Holiday seems to have inaugurated the general summer holidays; the attendance on 'Change is not so numerous as it has been, and merchants and dealers appear to be endorsing the opinion that there will be but little business doing by absenting themselves from town and enjoying themselves elsewhere. The continuance of the fine weather is a great boon, and although portions of the crops have suffered to an extent that is irremediable, still the average produce may be very much better than was at one time expected. This will do much to alleviate suffering, and will pave the way to a period of activity which, sooner or later, must once again characterise the metal and other trades. It may be but poor comfort, yet it is certainly a matter of satisfaction that every branch of trade, almost without exception, is in much the same condition as the metal trade, with, perhaps, this difference, that while in other branches of industry there are aggravating combinations of unsoundness which cause the existing dulness to assume a very serious aspect, metals are, as a rule, thoroughly sound, and so soon as the period of activity comes round there is nothing, so far as can be seen at present, to prevent the metal market from at once participating in the improvement. Markets at home and abroad are not overstocked, and the make is being, or has been reduced very much. True, there are appliances already in existence which, not so many years ago, were called into active operation to meet the abnormal demand which had sprung up, but these have now fallen into disuse, and the hands that were employed upon them have sought employment in other directions. No mere temporary stimulus to trade would induce the masters to put this extra machinery once more into motion, so that not much is to be feared on this score. The labour now obtainable is sufficient to meet any ordinary demand which may arise, and the efforts of the masters are directed to the maintaining of the balance between supply and demand, and to prevent supplies exceeding the demand. With a fair harvest, and no tightness in the money market, and the atmosphere cleared by the removal from the scene of the firms which have been engaged in an unhealthly course of trading, there seems fair reason to expect that things will at all events not grow worse, but that a gradual improvement may be looked for; but it may be some time yet ere the change for the better takes place.

COPPER.—The market has been steady. Sellers have shown increasingly less disposition to part with their holdings. Judging from the appearance of the market, and the published returns of stocks, it does not seem probable that lower rates for copper will rule, but that the day may not be so far distant as some suppose when higher prices than those now current will characterise the markets. The charters from the West Coast for the last half of July were announced on Tuesday, and are as follows:—1400 tons, 600 tons being bars for the Continent, 600 tons for England, and 200 tons ore and regulus. Since then the market for foreign copper has become firmer, and Chili bars have been dealt in at 79. 10s. cash. English is very much neglected, and, indeed, the business in copper has been altogether considerably restricted. The quotation for Chili to-day is 79. 10s. to 80. 10s., cash 14 days, and about 79. for distant delivery.

IRON.—Nothing can be well more unsatisfactory than the reports of the iron trade from the various centres of this industry. From Wales the condition of affairs is viewed as almost hopeless. Were it not the duty of the chronicler of the state of trade to give a faithful report of the existing state of things it would be infinitely more agreeable to close the page, and add not another line until a different condition of affairs called forth a more encouraging statement than that which now only in truth can be given. The outcry in Wales is that there are no orders. The quotations of prices, be they what they may, have no effect in stimulating trade. Some of the makers, in their earnest endeavours to meet the exigencies of the occasion, have quoted prices which leave them no margin, or at least but a very narrow margin indeed, for profit, but without any result. Buyers resolutely hold back, and refuse to give out their orders. This is no time for makers to act independently of buyers. The time was when, if the public refused to come into the market, manufacturers could still keep their men employed making for stock in the knowledge that sooner or later their stock would become available in the market; but now such a course would be suicidal, and the sound position occupied by the ironmasters could no longer be maintained. At the present moment the energies of the masters are devoted to the contraction of the iron trade, so far as manufacture is concerned, and the development of the coal trade. The demand on foreign account is good, and this is almost the only department of the South Wales trade in which there is any animation.

The trade in the North of England is a shade better than that of South Wales. The demand for pig-iron continues good. The Scotch market still continues to afford efficient support to the Middlesborough production. Shipments abroad, too, are on a large scale and in excess of the quantity usually required at this season, so that it is expected that the returns of stocks in hands of ironmasters in the North will compare favourably with previous months. The make has been restricted, and the deliveries must have been considerable. The trade in the Tyne in the matter of iron shipbuilding shows a measure of improvement, and from this source the market has received support. No. 1 pig-iron now rules about 55s.; No. 3, 49s.; No. 4, 47s. In manufactured iron rails stand at about 7s. for ordinary sections; light rails are quoted 5s. to 7s. 6d. more. Plates for shipbuilding, 5s. 8s. Merchant bars, 7s. 10s. to 7s. 15s. The Scotch pig-iron market has been firm during the week, and the quotation to-day for warrants is 6s. 9d. buyers, and 6s. sellers.

LEAD.—There is no material change to report in the position of this metal. Lead is firmly held, and the demand suffices to maintain the firmness of the market. Good soft English pig is not obtainable under 22s. 5s.

SPELTER.—Very little doing in this metal, but market very firm, at 24s. for Silesian, and 18s. 5s. to 18s. 10s. for hard, the latter very difficult to obtain in any quantity.

QUICKSILVER continues steady at 10s. per bottle.

TIN.—The market has exhibited increased firmness during the last few days. It was very generally expected that the monthly return for July would prove unsatisfactory, but upon publication the deliveries were found to be considerably larger than was thought to be the case, and the market became firmer, and fractionally higher prices have obtained both for Straits and Australian tin. The statistics of tin and the aspect of the trade are such as to call for attention. It would seem quite possible that a slight increase of activity in consumptive demand would materially affect the position of the metal. To-day quotations for tin are:—Straits on usual cash terms, 5s. per ton; and for forward delivery, 7s. to 7s. 10s., according to prompt. Australian, usual cash, 7s. to 7s. 10s. per ton.

TIN-PLATES.—The policy of restricting the make has been strictly

adhered to, but the condition of things is unaltered. There is no demand to speak of, and apparently no prospect of improvement.

THE IRON TRADE (Griffiths's Weekly Report).—Friday evening. The market for Scotch pig in Glasgow has been steady all the week at about 60s. per ton. Warrants have advanced the same amount. The price of warrants, therefore, at the close on the Glasgow Exchange was 62s. 6d., rather buyers. This gives a gain of a little over 2s. per ton on the week's operations. The price of makers' iron now we quote:—Gartsherrie, 7s. 6d.; Coltness, 7s. 6d.; Calder, 7s. 6d.; Langloan, 6s. 6d.; Summerlee, 6s. 6d.; Monkland, 6s.; f.o.b. Glasgow; Glengarnock, 6s. 6d.; Eglington, 6s. 6d., f.o.b. Androssan; Shotts, 7s. 6d., f.o.b. Leith; Kenniel, 6s. 6d., f.o.b. Bo'ness. The iron trade presents no feature of particular interest this week. The state of the weather has been favourable for puddling; and, considering that the number of puddling furnaces at work throughout the kingdom is considerably diminished, the favourable weather above referred to has enabled the puddlers to do more than an average amount of work for one of the hottest weeks in ordinary times in the year. An arrangement between the Staffordshire iron masters and the puddlers has been arrived at in regard to the wages of the latter, which is fixed at 9s. per ton for the present. Our market is quiet for most kinds of iron. We have no sales of magnitude of rails to report. This branch of trade continues inactive. Buyers appear to be more scarce for heavy rails. We have some enquiry for tram-rails of light sections, but no actual business done this week. The general demand for all kinds of iron continues about the same as last week. The orders going down to the works are frequently for best Yorkshire and Staffordshire iron. We have no failures to report in the iron trade, and we are glad to say that rumours of failures no longer exist in this department. The tin-plate trade is quiet—prices unaltered since last week.

8s to 8s; Emma, 1s. to 1s. 1s.; Flagstaff, 1s. to 1s. 1s.; Frontino and Bolivia, 1 to 1s.; Javali, 9s. to 11s.; Malpaso, 12s. to 14s.; Rica Gold, 4s. to 6s.; Richmond, 12s. to 13s.; Sweetland Creek, 2s. to 3s.; Te-

oma, 2s. to 3s.

The Market for Mine Shares on the Stock Exchange during the

four quarters of the year is as follows:—

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four quarters of the year is as follows:—

NOTICES TO CORRESPONDENTS.

PATENT COTTON GUNPOWDER COMPANY.—I beg to call your attention to an error in the report of the Patent Cotton Gunpowder Company's meeting in last week's Journal. I am stated to have said "that I had a letter from Mr. Fell, of Newcastle," &c., &c.; it was, I believe, Mr. Punshon who thus spoke. Will you be good enough to correct this, and oblige.—R. P. VIZER, Stoke Newington, Aug. 5.

REGULAR MINING REPORTS.—If "Investor" will call at this address any day between the hours of 10 and 4 every information will be given him with reference to the Eclipse Mine. The board of management are pleased to state that operations are progressing most satisfactorily, and the shareholders are fully aware of the fact.—FREDERICK R. BLUETT, Secretary, 15, Coleman-street, London.

WORKING MINES.—"Subscriber" (Settle).—The right to the minerals belongs, as a rule, to the freeholder; but, as there are exceptions, it will be desirable for you to consult your solicitor with regard to the particular property in which you are interested. The fees payable upon registering a company with a capital of 200,000, would be £10; that is to say, 10s. deed stamp on Memorandum, 10s. deed, and 5s. registration on Articles; and 8s. 15s. fees on registration of 20,000/- capital. The solicitor's fees would be in addition, supposing a solicitor to be employed, which is not necessary. All the office fees are payable in stamps.

Received.—"J. P." (Adelaide): Thanks for the letter, and enclosures—"E. B. W."—"H. W." (Michigan)—"A. T. J."—"Amateur"—"P. N. W."—"G. B. W."—"G. W." (Leeds)—"Shareholder" (West Chiverton)—"M." : The matter is referred to in another column—"Shareholder" (West Esgrile)—"Shareholder" (New Consols): We could not publish such a letter; it should be addressed to the office—"Constant Reader" (Oswestry): We have forwarded the letter, as requested—"M." (Dublin): Next week—T. A. Readwin (Gold in Wales): Next week—"J. H. C."—"H. C. P."—"T. B. W." (Düsseldorf)—"Shareholder" (Budnick Consols).

IMPORTANT NOTICE—REDUCTION OF POSTAGE ON THE "MINING JOURNAL".—In consequence of the new POSTAL CONVENTION, which came into operation on July 1, the postage of the *Mining Journal* to many countries will be reduced to one-fourth. Henceforth the subscription will be 17. 10s. 4d. per annum (39 frs.), postage included, for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxembourg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Servia, Sweden, Switzerland, United States, Malta, Turkey, Morocco, Tunis, and the Canary Islands. Spain 17. 10s. (50 frs.)

AVIS IMPORTANT—AUX ABONNÉS ÉTRANGERS DU "MINING JOURNAL".—A cause de la nouvelle CONVENTION POSTALE il y aura, à partir du 1^{er} Juillet courant, une grande diminution du prix de l'abonnement du *Mining Journal* pour bien des pays dont le taux des postes est jusqu'ici bien élevé. A partir du 1^{er} Juillet le prix de l'abonnement sera de 39 frs., le port compris, pour l'Autriche, Belgique, France, Danemark et ses dépendances, l'Egypte, l'Allemagne, la Grèce, l'Italie, Hollande, Portugal et ses dépendances, Roumanie, Russie, Servie, Suède, la Suisse, la Turquie, l'Afrique septentrionale, etc. Le montant, si l'on le veut, sera touché à domicile, la fin de l'an. L'abonnement continuera sous avis contraire.

THE MINING JOURNAL,
Railway and Commercial Gazette.

LONDON, AUGUST 7, 1875.

THE UTILISATION OF SLACK COAL.

It will be a long time before the last is heard of the enormous sums of money which it is alleged were made during the brief interval which signalled what is now known as the "coal famine." Without doubt there was a combination of circumstances at that period which resulted in the making of money by some of our colliery owners. Not a little, however, of the increased income of that period was derived from the greatly augmented value, for a time, of slack coal. Large accumulations of property of this class here and there found purchasers on terms which had before been impossible of attainment. In this way that became a source of revenue which before was scarcely more than refuse. Still, as compared with the aggregate supply of the kingdom, the quantity of slack coal swept off during the coal panic was but small—the demand soon fell off, and the article is now again a drug. It is dangerously heaped up below ground, because in many cases it is less expensive to leave it there than to bring it to the surface, notwithstanding the careful watch which is necessary in order to prevent spontaneous combustion; and there are mounds of it upon the pit banks, of which many colliery proprietors would be only too happy to get rid at a low figure. Mining engineers are continually offering inducements to colliers with the view of reducing the proportion of fine coal to the minimum; and recently, more than at any other period, conditions have been agreed to whereby miners have been made to benefit in a pecuniary sense when the proportion of large coal has been above the average. Not only in the management and the daily working of a colliery has the aim of lessening the proportionate output of small coal been kept continually in view, wherever collieries have been properly conducted, but there has been much ingenuity displayed to devise means of breaking down the fast coal with as little destruction as possible. Processes of working, then, and actual manipulation by the individual collier, have alike aimed at this one economical result. But, with all this, slack accumulates, and the extent of its accumulation is the measure of the colliery owner's loss.

That man is designated the true patriot who makes two blades of grass to grow where before only one grew, and that inventor will be one of the greatest friends to the colliery interest who will show it how to realise a steady income from slack coal. Do what we may, it will never be a very profitable article, but if we succeed in making it yield only a moderate return we shall be accomplishing much. At the same time that the mining engineer has been busy in his efforts to keep down the quantity of slack produced in the daily working of his pits there has been much ingenuity displayed in efforts to utilise it, alike in the place of large coal or in the moulding of artificial fuel. Even so recently as this week prominent attention has been drawn to what is being done in the latter direction by the London and Provincial Consolidated Coal Company, at Hammersmith. On Thursday, last week, the works of this firm in Blythe Lane were visited by a party of engineers and other scientific men, who watched the process of converting slack coal into cubes of fuel by the aid of a little pitch, and tar, and farina (or starch), and plaster of Paris. No more than 10 tons a day is at present being turned out, but to that extent slack coal is being profitably utilised. What is being done by other firms having a similar object everyone acquainted with the steam coal district of South Wales, for example, well knows, and the ingenuity of mechanical engineers is being exercised in the hope of enabling our ironmasters, who are, altogether, our best customers for coal, to use slack in an increasing degree. What is being done in this regard alike in the management of blast-furnaces and of mills and forges has from time to time been set forth in the *Mining Journal*, but success has not been so conspicuous as could have been desired. We cannot, however, but believe that a source of much economy to the ironmaster will yet be developed in the slack coal which is now impeding the daily operations of our coal mines. Upon this source ironmasters have, in our opinion, to greatly depend when they seek the means of combating much of the growing opposition which they have now to meet from foreign competitors. Even without the existence of the comparatively prohibitive tariff, it must not be expected that the British ironmaster can compete with the producer of finished iron in America in those cases in which gas is obtained for fuel by merely drilling a hole in the ground. But if slack coal can be used, then we may bring ourselves somewhat nearer to the low prices which gas is enabling certain Americans to quote, and which the wider application of gas at the ironworks in the States will make less infrequent.

The opinion is held that the Crampton revolving furnace will greatly aid the ironmaster in his efforts to use slack. It is true that powdered coal is injected into the Crampton furnace, but whether it is possible, even after it has been washed, sifted, and pulverised, to use the ordinary slack of the majority of the colliery districts has yet to be established. If we are not misinformed, coal of a larger size than that which is usually denominated slack, and coal likewise of a good quality, is what the Crampton furnace needs. Even if the Crampton could be fed with pulverised slack, we fear that the day has not yet arrived when the colliery proprietor can fairly look to that market as the one in which he will be able to dispose of much of his refuse coal. General discussion upon the whole problem is receiving light from across the water. Very sur-

pising results have there been obtained, in respect alike of quality and yield, by the simple process of blowing air into puddling and mill furnaces at the top, and the process is more effective when slack than when large coal is used. Moreover, it seems that experiments already begun in this country point to the expectation that while we are making excellent fuel out of the volatile properties of that which at present is hardly more than pit refuse we may be leaving valuable coke as a residuum. It is not certain that we shall be unable by this method of utilising oxygen to make slack coal burn in our locomotives and steamers. If Mr. ROGERS (of the iron-making firm of ROGERS and BURCHFIELD, of Leechburgh, near Pennsylvania) should be able to show us how to accomplish all this he will lay not alone the colliery interest of the whole world under obligation to him, but he will prove himself a benefactor to his species.

THE LABOUR LAWS.

The pertinacity of the leaders of the various trade associations in the country, more particularly those connected with mining, and the manufacture of iron, with respect to legislature favourable to those they represent, has this session been most successful, and they have obtained, we believe, a great deal more than they ever anticipated. But the working man of late has been so petted and flattered by members of Parliament that all other interests appear to be so insignificant that they must give way to his claims. But those legislators who look so much to the interests of the working classes it is evident seek for present popularity with view to future favours, so that the British House of Commons, with its working men's representatives, is fast descending to the level of the United States House of Representatives. The corruption of that body is matter of American history—or, we may say, of a number of its members, for it has within it men of the highest honour and of the greatest patriotism. But our own legislators, or a good many of them at least, are adopting the tactics that have been used by unscrupulous persons on the other side of the Atlantic for securing the favour of the lower classes. They have aided in placing a great power in the hands of trades unionists as opposed to capitalists who are large employers of labour, by repealing Acts of Parliament that, despite some anomalies, have secured the independence of the working man who did not belong to any Trades Union, and give liberty of action to all, employers and workmen. Great political power, however, has been placed in the hands of those who are least able to use it wisely—we mean those without education or intelligence, for we admit that whilst there is a vast body of men steeped in ignorance who are workers, and are led by the oily tongues of well-paid leaders, yet there are others who toil hard daily who are as intelligent as any other class in the kingdom. But those men who guide the mighty power of ignorance do so for their own ends. As has been truly said, they aim at raising a despotic democracy, in which all power should be taken from wealth and intelligence and transferred to those who should represent the greatest amount of ignorance, so that Trades Unions and their leaders should be recognised by the State as a mighty and established power. By such means the really intelligent and independent working man, who has hitherto kept aloof from the demagogues and their associates, would be compelled to throw in his lot with them. We have on many occasions pointed out the despotic and tyrannical proceedings of many of our Trades Unions, and it is to be feared that with the increased power given to them there will be a stronger despotism than ever, which will compel the really intelligent working man to belong to a combination which he well knows will take away from him every vestige of his liberty as a contractor, or one having labour to dispose of.

But recent legislation on the question of labour, and its relation to capital, can be looked at from more than one point. It is, therefore, to be regretted that the claims of the employers of labour were entirely left out of consideration with regard to the measures which have just been passed by the Government, by which the future relations between masters and workmen are to be guided. This was evident from the first, for whilst on the commission appointed last year to enquire into the working of the Masters and Servants Act and the Criminal Law Amendment Act there were at the least two well-known representatives of the Trades Unionists—Mr. T. HUGHES, and Mr. A. MACDONALD, M.P.—present, there was not one member in any way connected with trade, or who was an employer of labour. How far this was fair we leave our readers to judge. The result of the declaration of Parliament, both sides of the House of Commons bidding for the support of the now popular working man, was that the Trades Union leaders obtained all they required, breaches of contract being made mere civil matters, the Criminal Law Amendment repealed, that picketting and molestation is made easier, and attended with considerably less serious consequences than it was. It was left to the Lord Chancellor to define what was molestation, and for certain offences there is a penalty of 20/- or imprisonment for a term not exceeding three months. But it is also enacted that a person "Attending at or near the house or place where a person works, or is employed, or the approach to such house or place, in order merely to obtain or communicate information, and not with a view to intimidate or to deter by serious annoyance such person from doing, or abstaining from doing, that which he has a legal right to do, or abstain from doing, shall not be deemed a watching or besetting within the meaning of this section." If this does not give a great latitude, and open the door very wide indeed to do what it is intended to provide against, then language must be very different in Acts of Parliament to what it is in ordinary matters, and as understood by all classes.

But we would ask some of our wise legislators whether they are not making a great mistake in supposing that the Unionist leaders have any right to speak on behalf of the working classes of the country? In our opinion they only represent a small section, and that the least intelligent. To dispel the illusion which many members of the House of Commons must be labouring under with respect to trade associations and their power, we will give a single illustration. The Unions belonging to the mining body are the most powerful we have, yet at the recent gathering of the Miners' National Association, of which Mr. MACDONALD, M.P., is the president, there were delegates from all the districts in the kingdom representing, we were told, 136,000 members, whilst according to the returns of the Government Inspectors for 1874, the number of male persons employed in mines underground was 428,611, and 110,218 above ground. This speaks for itself, and shows the actual power of our trade associations with respect to the number of persons employed.

THE CARDIFF AND SWANSEA STEAM COAL COMPANY.

As we anticipated in the Journal of July 10, the shareholders of this company have decided in the most emphatic manner to retain the valuable services of their Chairman, Colonel Shakespear, and Mr. Richard Shaw, M.P., has also been induced to resume his seat upon the board. The committee formed to secure the election of these gentlemen, of which Mr. H. Russell Evans was Chairman, may well be congratulated on the result of their efforts, and their victory has been so complete that the destinies of the company are now entirely in their own hands. The proxies returned were as follows:—For Col. Shakespear and Mr. R. Shaw, M.P., 4043 votes; for Mr. Coats and Mr. Mosley, 1405; and for Mr. John Corry, 476. Mr. Shaw, M.P., in referring at the meeting to the proposed removal of the office to the country, and to the suggested reduction in the directors' fees to a ridiculously small sum, struck the right key-note when he characterised these proposals as an indirect attack upon the Chairman, and evidently the great majority of the shareholders took the same view. That the vendors who had profited so largely through the company should support these suggestions was in itself suspicious, for they would be the last, one would expect, to preach economy, having regard to the enormous expenditure incurred under their management for the last two years. The result of all these proceedings was the election of a thoroughly independent board, the vendor element being now entirely got rid of. This is a fortunate circumstance for the shareholders, and the company being once more in smooth waters it may be reasonably expected that it will soon resume its position in the Dividend List. It possesses a fine property, which at the present time yields something like 5000 tons per

week of coal, of a quality not to be excelled, and there is no reason why, under good management, this quantity should not be further increased.

INTRODUCTION OF MCKEAN'S ROCK DRILLS IN SOUTH AMERICA.

It was mentioned in the *Mining Journal* of July 17 that at the St. Gotthard Tunnel, in Switzerland, the McKean rock-drill has superseded all others, and, perhaps, no better evidence of the opinion than that afforded by the fact announced last week—that Mr. Leon Lavoisot has become the licensee for Chili and the other mining countries of South America. Mr. Lavoisot having been for three years chief engineer to the contractors for the St. Gotthard Tunnel, and having personally directed the commencement and drivage of ascertaining the relative merits of the several drills, and by connecting himself with the McKean drill has shown not only that he is satisfied with its performance, but that he regards it as the rock-drill best adapted to ensure him success in carrying out the heavy mining and tunnelling operations in Chili which he proposes to undertake. The manner in which Mr. Lavoisot has performed his technical duties at St. Gotthard and at the Simplon leaves no doubt as to his high efficiency as a civil engineer; and it may be anticipated that in connection with great engineering enterprises in South America the name of Lavoisot will speedily become as extensively and favourably known as that of Favre is at present with regard to the great tunnels of the Alps. That Chili and the neighbouring countries will be much benefited by the extension of railways is beyond question, and it may be hoped that as the utmost possible facilities for tunnelling will now be within their reach very necessary extension of the means of intercommunication will not be longer delayed. The subjoined refers to Mr. Lavoisot's establishment at Valparaiso:—

M. Léon Lavoisot, Ingénieur Civil, après avoir été pendant trois ans aux travaux du tunnel du St. Gotthard se rend à Valparaiso, comme représentant de Messieurs McLean and Co. pour propager l'emploi des machines de leur système dans l'exploitation des mines et tunnels du Chili.

MONSIEUR MR. LAVOISOT.—Au moment de votre départ vous me demandez un certificat constatant l'état de vos services depuis votre entrée dans notre entreprise. Je transcris ci-dessous les fonctions que vous avez occupées jusqu'à ce jour.

1.—Du 1^{er} Septembre, 1872, au 1^{er} Janvier, 1874.—Ingénieur chef de service chargé des installations de l'embouchure nord du tunnel (Goeschenen) et de la direction du percement.

2.—Du 1^{er} Janvier, 1874, au 1^{er} Mai, 1875.—Ingénieur chef du bureau central de direction des travaux.

3.—Du 1^{er} Mai, 1875, au 1^{er} Juillet, 1875.—Ingénieur chargé des études préliminaires pour le percement du Simplon et le raccord du tunnel avec Dom Ossola (Italie) et les lignes du Valais.

Je suis heureux en outre de rendre pleinement justice à l'activité et à l'intelligence remarquables que vous avez toujours déployés dans l'exercice de ces diverses fonctions.

Recevez, mon Cher Monsieur Lavoisot, l'assurance de mes sentiments cordiaux. Monsieur Léon Lavoisot, Ingénieur Civil. (Signé) L. FAVRE ET CIE.

M. Lavoisot étant au courant des progrès de l'exploitation des tunnels par la perforation mécanique, sera en mesure de donner la plus grande satisfaction dans l'exécution de ses entreprises. Nous le recommandons aux intéressés.

McKEAN AND CO.

THE JUDICATURE ACTS.—We have much pleasure in calling attention to an advertisement in our columns of a work, shortly to be published, on the New Practice of the Courts under the recent Judicature Acts. The author—Mr. Arundel Rogers—is well known in the profession, and has gained a good reputation as the author of "The Law upon Mines, Minerals, and Quarries"; and inasmuch as there is no branch of law which will be more affected by the Judicature Acts, we have no doubt but that the efforts of the author will be duly appreciated. We could draw attention to many cases where the decisions of the Equity Courts have not been consistent with the decisions of the Law Courts in reference to mining questions, but we hope for better things in the Supreme Court of Judicature instituted under the statute laws of 1873 and 1875.

SIGNAL BELL FOR COLLIERIES AND MINES.—The improved signal bell, described and illustrated in the Supplement to last week's Journal, being one which many connected with mining will, no doubt, like to inspect, the inventor, Mr. W. Lee, of the Pepper Mill Brass Foundry, Wigan, has forwarded a sample to the *Mining Journal* Office, where it can be seen by those interested.

COAL FIELDS OF SPAIN.—M. Grand, in describing the coal fields of Spain to the Paris Society of Engineers, estimated their area at 150,000 hectares (the hectare being about 1.47 acre), from which only 500,000 or 600,000 tons are annually extracted, while Belgium, with the same area, yields 10,000,000 tons. The Spanish coal fields are situated in Castile, Leon, and the Asturias. The processes are described as being very rough and imperfect. M. Delesse stated that the coal of the Asturias was chiefly used for gas making.

COAL AND IRON IN THE UNITED STATES.—Considerable progress has been made in laying 13 miles of steel rail second track on the Philadelphia, Wilmington, and Baltimore Railroad, south of Havre de Grace. A new rolling-mill in South Chester, Pennsylvania, will be ready for service in a short time. The mill is 187 ft. by 192 ft. and contains six puddling-furnaces. The machinery will be run by two Corliss engines and four smaller engines. The capacity of the mill is 50 tons per diem. The production of anthracite coal in Pennsylvania to July 3 this year was 6,847,411 tons, against 9,153,639 tons in the corresponding period of 1874, showing a decrease this year of 2,305,678 tons. Including bituminous coal, the total coal production of Pennsylvania to July 3 this year was 8,454,988 tons, against 10,666,033 tons in the corresponding period of 1874. Trade in the anthracite coal regions of Pennsylvania has been pretty generally resumed, and the production has considerably increased of late.

AN IMPORTANT ECONOMICAL DISCOVERY.—In one of our iron-making centres experiments of great economic significance are being conducted, under the supervision of the senior partner in the firm of Messrs. Rogers, Burchfield, and Co., ironmasters, of Leechburgh, Pennsylvania, who, on only a brief visit, has arrived in England within the past fortnight. Mr. W. Rogers is no ordinary man; and although now an American ironmaster, he is an Englishman. Upon first leaving home he toiled as an ironworker in Austria, and removed thence to the United States. There he found that the very expensive iron sheets made in the ironworks of Siberia were largely used, but that neither in the United States nor in any other country beyond Prussia was it known by what means the peculiar excellence of the Russian thin iron was obtained. Like "Foley the fiddler," who after two stolen visits to Sweden succeeded in fitching from the ironmasters of that country the secret of making slit rods, Mr. Rogers, four years ago, went out to Siberia, and being successful in gaining admission to the ironworks there, he possessed himself of the information which all ironmasters outside Russia so ardently desired. Returning to America, he commenced making Russian sheets. The method is still jealously guarded by the Russians, and is not, we believe, known even at the present day in England. But this is not all: he has applied the natural well gas of Pennsylvania as a fuel to all the purposes of his ironworks—the heating of his furnaces and the generation of steam. More: by the application of blast, injected at the top of the furnace, he has used the principle of the blowpipe in the making of finished iron, to the conspicuous economy of the working, and the improvement of the quality. In ascertaining whether that can be done here by using blast in this fashion, which has been done at Leechburg, Mr. Rogers is just now occupied, and the experiments have thus far promised equal success in the two countries. If all should be realised which is anticipated it will be possible to make finished iron of cheap slack instead of costly large coal, the heavy cost of getting will be saved, the quality and the yield will be largely improved, and the residuum of the coal so burnt will not be a worthless ash and cinder, but a serviceable coke. Nor is this all which is foreshadowed in this simple application of blast, above rather than below, or at the sides of a fire: Mr.

Rogers is confident that the principle can be applied to the firing of locomotive and marine boilers with results even more economical than those attending its use in ironmaking. While Mr. Rogers is experimenting in England, associated ironmasters of Pittsburgh are investigating what is being done in the every-day operations of his firm at Leechburgh. If only the half of all that seems practicable through this discovery should be attained, colliery owners and ironmasters, the consumers of iron, and the owners of railways and steamships will be immensely benefited by it. Experiments to test the applicability of the invention to locomotives will be begun in the ensuing week upon one of the leading railways in this kingdom.

MOLD MINES.—This valuable property, which was put up in one lot for sale, by Mr. John Churton (of Messrs Churton, Elphick, and Co.), on Wednesday at Mold, was not sold. As mining matters are now gradually improving for investment, and taking into consideration the advanced position of this property for the development of early and increasing returns of profit, it is to be hoped that Messrs. Churton will secure a purchaser by private treaty, as, knowing the character of the undertaking, we should regret seeing the concern broken up and sold piecemeal.

REPORT FROM CORNWALL.

Aug. 5.—We have mainly to repeat the remarks with which we commenced our report last week. There is hardly anything doing, and matters, if possible, look even worse than they did then. It is not as if the present depression were a mere sudden pinch, following closely upon a season of prosperity, and likely to give place to a sudden recovery. Our prospects have been on the decline so long that in many breasts hope has died out altogether, and, in fact, almost the only hope now is that we are really at the bottom of the hill, and that there is no lower depth to receive us. Is this so?

Different people will, of course, answer this question in different ways. One answer, and that a very practical one, is that supplied by the stocking of tin at Wheal Owles and elsewhere. Concerning the wisdom of this opinion are very much divided. As it has paid before, however, there is really no reason why it should not pay again. If we believe that tin mining in Cornwall is doomed there would be an end of the matter, but as we do not the sole point to be settled is whether the cost of holding until the rise is likely to be repaid by the rise when it comes, and that, of course, is a matter of speculation. The downward tendency and depressed state of the tin market can only arise from one of three causes—over supply, deficient demand, and trade disorganisation. Which of these causes are now at work? In a certain sense we believe all three. Over-supply there certainly is and has been, consequent upon the large importations from Australia. Deficiency of demand is rather a relative than an absolute phrase in this connection, for though the demand for tin has fallen off of late it has had a large general increase, and it is clearly evident that we have a much larger demand to anticipate in the future. The element of disturbance that we have termed trade disorganisation is of necessity only of a temporary character, but whether it is produced merely by speculation in the tin market itself, or whether by such commercial crises as we periodically pass through, and to which the recent heavy failures belong, it must have an influence upon our mining prosperity.

Each of these causes has, in our view, contributed to the present depression. With reviving commerce and confidence trade disorganisation will pass away, and demand will increase. The only element of permanent character with which we have to deal is that of supply, and the problem to be solved is how to keep the supply as much as possible in our own hands. The only solution is the production of the metal at the cheapest possible rate. Not only must every effort be made to work our tin mines as cheaply as possible, but the friends of legitimate mining should do their utmost to discourage the re-opening or continuation of mines which have no fair chance of success, and the only effect of the working of which is to overload the market with tin that has been bought a great deal too dear. There is more real prosperity in a few good mines than in a great many bad ones.

So far as economy of working is concerned, we believe there is an almost universal disposition in the county to carry it to the utmost, though mistakes may be made as to the means. The truest economy is good management, to which all other economies must give place. Soon we hope we shall be hearing something definite about the boring trials at Dolcoath. That is one form of economy which, sooner or later, success must attend. We are glad to find, too, that as good an example has been set by Capt. Teague and his agents, by agreeing to a voluntary reduction of th'ir salaries. The aggregate amount may not be much, but it is clearly the right thing to do. May we recommend the example for liberal imitation by the lords; they can better afford, as a body, to reduce their dues than agents their salaries, and it is surely their interest to enable the mines to tide over their difficulties. Half a loaf is better than none. There are lords who do not need this hint; but there are yet men who do. Let it be clearly understood that the chief hope of our home tin mining now is, so to reduce the cost of production as to make the Australian imports unprofitable, and let all efforts be directed to that end.

The Park of Mines meeting will be attended by a large number of shareholders from Manchester, Sheffield, &c. The wonderful deposit of tin here, with its wealth of crystals, which would bear comparison even with the far-famed products of Queensland, is not so rich, but in its place are three or four splendid lodes which, when fully developed, will compete with Australia, and will not be neglected even if tin fall to a much lower price.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Aug. 5.—The Iron Trade continues as bad if not worse than it has been at all. There are but few orders in the market for railway iron, which is the principal manufacture in the district, and it is just at present scarcely enquired for at all. It is, as stated in previous reports, hardly worth manufacturers' while to turn out railway iron, as the prices at present barely cover the cost of manufacture, so that there is really little inducement for masters to secure contracts under present circumstances. It is believed that, unless a change takes place for the better, prices in the iron trade will have to undergo a further reduction, and the rate of wages will have to be revised, for it is impossible for ironmasters to go on keeping their immense establishments going for any length of time without any benefit to themselves from the operations. The year has so far advanced, and autumn being near at hand, it is apprehended, and no doubt with good reason, that there cannot be any material improvement in trade this year. The time is not far distant when the Northern ports will again be closed, and until next spring there will be no change in the business being done in these directions. In regard to America, it is almost unnecessary to say that with the great competition both in the United States and other countries, and the comparatively small request for iron generally, there are no orders in this district from the Transatlantic buyers. At present there seems not the slightest disposition on the part of purchasers to give out orders, and the prospect of business becoming more active is very remote indeed. Inasmuch as it is considered the wages question is now thoroughly understood between masters and men, and such agreements having been come to that no further strike or lock-out will take place, so that if at any time buyers have orders to give out they will be able to do so without being under any apprehension that the execution of such contracts will be interfered with by any disruption between employers and employed. Whether this will make any difference in transactions for some time it is quite uncertain; there is no doubt it will give both masters and consumers confidence in entering into future contracts. The Tin-plate Trade presents the usual features, as commented upon in several previous reports, and there is not likely to be any immediate improvement. According to the agreement at the quarterly meeting, a limited production is still being manufactured, and the demand is still considerably under the average.

The demand for Coal is still very good, and large quantities are from day to day dispatched to home and foreign markets. Prices

generally are declining, and complaints are now heard that the rates obtained will barely leave any profit to the colliery proprietors after the cost of getting the coal to the port has been defrayed. There is, therefore, some ground to think that before long another revision of the wages rate will have to be made. There is an improved demand for steam coal, and this enables proprietors to keep their collieries better employed than was the case a week or so ago. It might be said there is a positive alteration in quotations, and there is considerably more firmness evinced in this respect than has been the case for some time past; this improvement may be attributed in a great measure to the fact that there is a large number of steamers chartered to carry coal to the home, Baltic, and other northern ports, and these take out coal upon more advantageous terms than under other circumstances they could, from the fact that so many steamers are being chartered for bringing grain to the home markets will, it is believed, very considerably increase the demand and consumption of coal for marine purposes.

REPORT FROM THE FOREST OF DEAN.

Aug. 4.—We are happy to report a gradual improvement in the Coal Trade since our last communication, taking the cheerful fact of an increased demand for labour as substantial proof that business is assuming a more encouraging aspect than for some months past, though even now it is far from that state of activity which would keep all hands daily and fully employed. But the improvement, though limited, we trust will advance until both capitalists and working colliers are mutually more contented with the local coal trade than has been the case during the first half and more of the current year. The fact that workmen made full time at some pits through last week affords much satisfaction, because we know that much suffering from short commons for months past has been the lot of many, and the consequent dulness of shopkeeping business has proved very trying to many tradesmen—compoundage and removals being some of the fruits and proofs.

The Iron Trade is still very slack, though little change is reported as to the state of work at the various iron mines, the usual complement of hands in most instances being employed. Transition, however, appears to be the fate of the Forest of Dean, in some cases in an evil, but in others, we hope, in a good sense. The case of distraint at Sewdley furnaces, referred to in our last, has been tided over for the present, and upon further enquiry we found that matters had been considerably exaggerated. It appears that the Thomas Woodgate alluded to in the case advanced money to Mr. Lowe, who sold the property to the present company, and as he had neither fully paid the loaned money nor its interest, Mr. Woodgate came upon the property with a view to recover. This seizure, as tending to damage the reputation of the works, very naturally annoyed the present proprietors, who sought to restrain the force to be employed, but were advised to pay the demand, with expenses, and then sue for compensation. The debt was only 800*l.*, we understand, but the expenses ran it up to a total of 1100*l.*, which has been paid into Court, and Messrs. Morrison, Beauclerk, and Co. are now seeking the restitution of their rights by legal process, and compensation for the injury inflicted by the Messrs. Woodgate and Lowe, the defendants in the present suit. No smelting is carried on at Sewdley at present, as the extensive alterations now in progress will not be completed for some time to come, but as soon as a fair margin of profit can be assured from operations work will be resumed, and with a view to employ old hands, a very moderate profit will induce the proprietors to begin work.

It is stated that Mr. Crawshay has purchased the whole of the works and mineral properties of the Forest of Dean Iron Company, Parkend, for 120,000*l.*. They comprise the Forest of Dean works at Parkend, the tin-plate works at the same place (formerly the property of Messrs. Allaway), the China iron mine, and several other valuable mineral properties. About a fortnight ago Mr. Crawshay also acquired by purchase from Mr. C. C. Hough, Messrs. Luckes and Nash, and the Rev. T. Holbrow, the Robin Hood Iron Mine, near Stanton. The different works will be carried on as usual, and with very few changes, if any, are to be made in the staff of employees.

The railway works in progress are being pushed, but the eastern side of the Forest will be the last portion to receive the boon of passenger traffic, the western side approaching readiness at present date. This week the sanitary question has cropped up afresh in this district, a kind of hole and corner meeting having been held yesterday at the Town Hall, attended by about thirty rate-payers, and, after considerable discussion, a resolution was passed requesting and authorising the rural sanitary authority to proceed forthwith with the scheme proposed by Messrs. Beesly and Gotto, engineers, who visited Cinderford for purposes of surveying and engineering under the Local Government Board, but it is proposed to modify the plan somewhat, and only the drainage part will be proceeded with in the first instance. Will the resolution be acted upon? By waiting a little "we shall see what we shall see." Mr. Alfred Goold was present, and explained his scheme to the meeting. Mr. Alfred Goold was in the chair.

TRADE OF THE TYNE AND WEAR.

August 5.—The Coal Trade continues very dull in most branches, and there is little, if any, prospect of improvement. No doubt the steam coal trade is steadier, and in a better position than any other branch of the trade. As a large portion of this coal is shipped abroad, it is not so much affected by the internal state of trade in the county as the other branches of the coal trade. The house and gas trades are very quiet, and the dull state of the iron trade, both pig and finished iron, has had a very depressing effect upon the manufacturing coal and coke trades. The shipments of pig-iron, however, have been on a good scale of late, and some hopes are entertained that a revival of trade will take place shortly, but no great beneficial effect is expected to occur in less than three months.

An able report has appeared in the *Newcastle Daily Chronicle*, giving the average wages earned by men employed at the collieries in Durham, both on surface and underground. The wages range from 6*s. 1d.*—that is, hewers underground to banksmen, from 3*s. 4d.* to 4*s. 7d.* That was in November, 1874; since that time, during the present year a further reduction has been made of 5 per cent., and the wages are now considered to be 6*s.* for underground hewers. The average wages in Northumberland are from 5 to 30 per cent. above the same men in Durham. The wages of hewers in Northumberland are at present 6*s. 7d.* per day, and others in proportion, and banksmen from 3*s. 8d.* to 4*s. 9d.* per day. The writer of the article from which these figures are taken remarks that they have been made public for the first time, and that they will excite surprise amongst those who had been led to form an erroneous and unjust idea as to the big earnings of the men employed about coal mines; he overlooks the fact that the wages given are the *average* earnings of all the men, so that both old and young, weak and strong, are included; many of the men do not earn, on an average, 4*s.* per day, while others average much above 6*s.* per day. Before the late reductions it was quite a common occurrence for a coal hewer at some of the collieries in Durham to take from 9*s.* to 12*s.* for a fortnight's pay, and at the present time many of them earn from 7*s.* to 10*s.* per day. That some of the miners indulged occasionally in champagne and other luxuries is well known, and it is to be regretted that many of the lower classes of pitmen indulged in more injurious beverages. It is also a matter for congratulation that a large number of the better class of miners in Northumberland and Durham have expended some part of their savings in better things, such as pianofortes and other musical instruments, as the dealers in these articles can well testify; many of them have also invested money in building societies, &c.

At Middlesborough, on Tuesday, there was a good attendance, but comparatively little business was done. No. 3 Cleveland pig-iron was sold at 49*s.* per ton, and some sellers quoted a lower price. Considerable shipments have been made lately to foreign ports, and also coastwise to Scotland and other places, and it is expected that stocks will not increase so much during the present month. In the finished iron trade there is little improvement to report. There seems to be more confidence commercially growing up at the present time, and if trade should offer the condition of things may improve

somewhat, though, generally, hopes are not entertained of such a result for some time to come. It is hoped that the autumn may bring in more trade, especially from the colonies and the Continent. The rates of pig-iron are quoted—No. 1, 55*s.*; No. 3, 49*s.*; and so on, as of late. There is no change worth noting in the finished iron trade, but the tendency is still downwards, as manufacturers are anxious to secure work. Rails are 7*s.*, plates 8*s. 10*s.**, and other iron in proportion. Coal and coke can be had on easier terms.

The directors of the Consett Iron Company have resolved to recommend to the ensuing general meeting of the company the payment, on Sept. 6, of a dividend of 2*s.* per share; and the directors of the Consett Spanish Iron Ore Company (Limited) have resolved to pay a dividend of 9*s.* per share for the year.

NORTH OF ENGLAND INSTITUTE OF MINING AND MECHANICAL ENGINEERS.—The annual general meeting of this Institute will be held on Saturday, when the president and other officers for the ensuing year will be elected, as well as a number of new members. The discussion on Mr. Bunning's paper on "The Present Form of Marine-Engine used in the Commercial Navy of Great Britain" will be resumed. The following paper will also be read—"A New Mode of Dealing with Water in Sinking Shafts," by Mr. Henry Davey.

GOVERNMENT EXAMINATION FOR CERTIFICATES OF COMPETENCY AS MANAGERS OF MINES.—An examination, under the provisions of the "Coal Mines Regulation Act, 1872," took place in the Central Hall, Darlington, last week, under the direction of the Board for Examinations for the Mining District of South Durham, Westmorland, Whity, and Cleveland, of which Board Mr. David Dale, Darlington, is the Chairman. The district, which extends from the River Tyne to South York-shire, and westward to the Cumberland mines, is one of the most important mining districts in the country, and the examination was considerably larger than on previous occasions, owing to an alteration recently made by the Secretary of State, changing these examinations throughout the country from half-yearly to yearly. In addition to the candidates from the various collieries and mines in the district, there were several presented themselves from distant parts of the country. The examination was strictly private, and was conducted by the examiners of the Board—Messrs. J. Daglish, Tynemouth; A. L. Stevenson, Durham; and J. Forster, Her Majesty's Inspector of Mines; and G. W. Bartlett, Darlington, the secretary of the Board. The examination is thorough and severe, and is conducted, both in writing and *visa voce*, with each candidate, and consists of subjects such as the practice and theory of ventilation, nature and properties of gas, general engineering principles, surveying, properties of steam and water, practical mining machinery in general use at collieries and mines, provisions and requirements of the Coal Mines Regulation Act, the geology of the northern coal fields, &c. The qualifications necessary to be possessed by the candidates are divided into two classes—professional experience and practical experience; but the former class also necessarily embraces a sufficient practical experience in actual mine working. The evidence and testimonial as to character, ability, and experience are likewise of very stringent nature. Each candidate, before presenting himself for examination, must obtain an "authority" from the Home Office in London, for which a fee of 2*s.* is charged. Darlington was selected as most convenient for the examination of the northern district, owing to the convenient railway access to and from the various parts.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Aug. 6.—The South Staffordshire Iron Trade has shown some what more strength this week alike in the pig and finished departments, but the actual movements have not been of much importance. The general opinion of usually well-informed authorities appears to be that the worst of the depression is now over, and that a steady, though perhaps not a very buoyant, improvement will now be experienced. Pigs are selling at 4*s. 10*s.** per ton for best native alluvium of hot air, and at 6*s.* for ditto of cold air make. These pigs are made entirely of the rich argillaceous ironstones of the district. Good quality pig made of the same ironstone mixed with a modicum of other ores is selling at 4*s.* to 4*s. 5*s.**, and common cinder at 2*s. 17*s.* 6*d.** to 3*s. 5*s.** per ton, according to make. The number of furnaces in operation in the district has been reduced (by the blowing out of Messrs. Firmin's three) to 76, and these are yielding an average of 7000 to 8000 tons per week, a total not nearly adequate to the requirements of the district for its local consumption. In the finished iron branch of the trade the only movement of importance is in regard to sheets, which during all the long depression in other descriptions have maintained a steady demand. As to prices, the standard for marked iron continues on the basis of 10*s.* to 10*s. 12*s. 6*d.*** for bars; common (unmarked) bars selling at 8*s. 5*s.** to 9*s.* per ton. Sheets (ordinary single) range from 11*s.* to 12*s.*, according to quality. The colonial enquiry is fairly well sustained for galvanised roofing sheets at about late rates.

The South Staffordshire Coal Trade is steadier as regards the demand for better qualities, and prices are, on the whole, more regular for the inferior kinds of coal and slack. Cannock Chase best "deep" coal is selling at 14*s.* per ton, and other qualities in the usual proportions to that rate. Dudley thick coal is well sustained by all the leading firms at full list quotations.

The directors of the Cannock and Huntington Colliery Company (Limited) report that the boring has been carried to a depth of 389 ft. 6 in., and that the full depth of 600 ft., which the Diamond Rock Boring Company have contracted for, will be accomplished without much further difficulty or delay. The bore-rods have passed through white and blue binds, and are now in black shale-strata which form part of the recognised coal measure of the district.

The meeting in Wolverhampton, on Tuesday, respecting the wages question in the Iron Trade may be said to have passed off pretty satisfactorily. Mr. J. P. Hunt gave his reasons for recommending the men to follow the course which had been taken in the North of England, and Mr. Ancott brought forward his arguments against the plan, and ultimately a compromise was effected, which it is to be hoped will tend to settle the question smoothly. It was clear that the principal immediate objects of the masters was the fixing of the rate of 9*s.* per ton as the basis of the wages scale, and the men having acquiesced in this the other matters were referred to a committee of representative men from both sides. The actual resolution which was passed read as follows:—"That from Monday, Aug. 23, the wages of puddlers shall be paid at the rate of 9*s.* per ton, and other wages in proportion, to continue in force till Jan. 1, 1876, and that a sub-committee of employers and ironworkers shall investigate as early as possible the alleged discrepancies in extras allowed in both districts on an equal basis; any such difference, whether by way of increase or reduction, to come into effect as from Aug. 23." In making the enquiry into the "alleged discrepancies in extras allowed in both districts," it will probably be found that there are items not easily estimable in money value, and both masters and men will expect that all the members of the sub-committee will take such a fair view of the apportionment of these items as will assist in bringing about a permanent settlement of the question. Whether after equalising these discrepancies and privilages as a system be followed in this district and the North or not it is to be hoped that a scale of some sort may be determined upon, which shall meet the general requirements of the trade for a long time to come. Strikes and lock-outs are certainly in the highest degree disastrous to manufacturing communities such as ours in South Staffordshire, but the deadening effect upon trade generally of the suspense occasioned by leaving these wages questions unsettled is not less clearly traceable, and it will be for the advantage of everybody concerned if some more permanent basis than heretofore existed can be agreed upon whereby the rate of wages may be fixed.

To-day's quotations on the Birmingham Stock Exchange included the following:—Sandwell Park Colliery, 33*s.*; Cannock and Huntington Colliery, 1*s.* prem., buyers; Pelsall Coal and Iron, 4*s. 1*d.**; Patent Shaft and Axle, 3*s. 2*d.** prem.; Chillington Iron, 5*s.*; John Bagnall and Sons, 5*s.*; Patent Nut and Bolt, 5*s.* 1*d.*; Ivy House and Northwood Colliery, 1*d.* The tone of the market is steady.

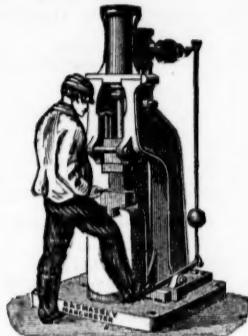
Yesterday evening an accident, by which two men lost their lives, occurred at No. 2 pit of the Himley Colliery. It appears that Henry Cowell, of Pensnett, and Thomas Bate, from Rowley, were at work with a lad named Enoch Duckett setting a tree, when a "bump" occurred, instantly followed by a heavy fall of coal. Both the men were killed on the spot. The boy was seriously injured. An inquest will be held.

The first annual meeting of the South Staffordshire Mines Drainage Commissioners was held, on Wednesday, at Wolverhampton. Mr. George J. Barker, the Chairman, presided, and all the commissioners, as well as the principal officers, were present. Mr. George Barker, was re-elected chairman for the ensuing year. The finance committee reported that the gross amount of the general drainage rate for the past year is

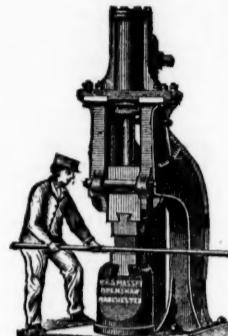
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PRIZE MEDALS AWARDED:—Paris, 1867 Havre, 1868 Highland Society, 1870; Liverpool, 1871; Moscow, 1872; Vienna, 1873.

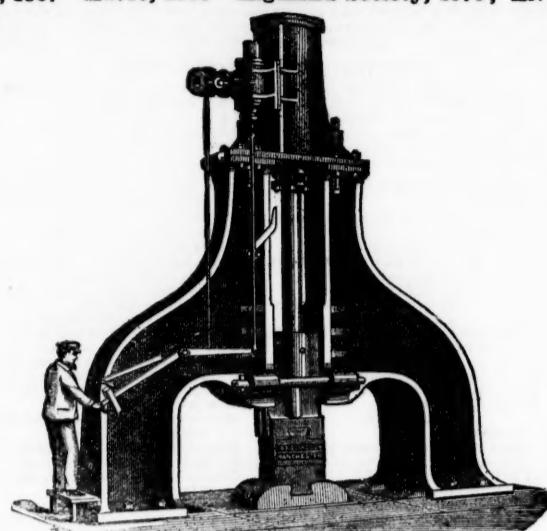
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Small Hammer with Foot Motion.



General Smithy Hammer.

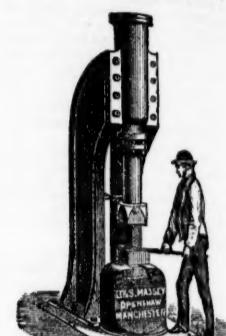


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Special Steam Stamp.



General Smithy Hammer.

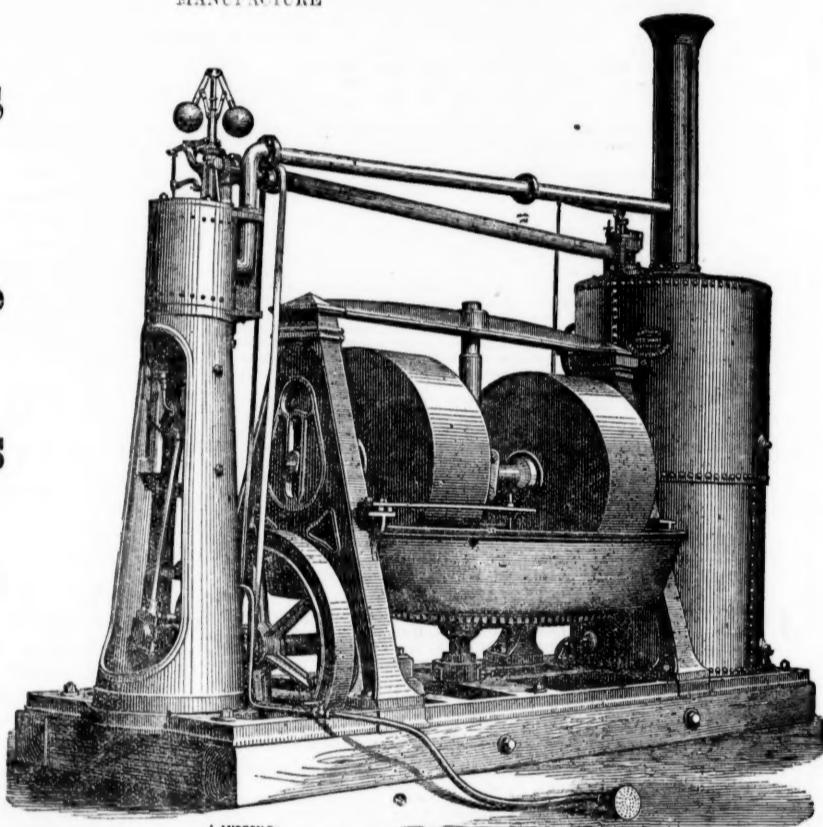
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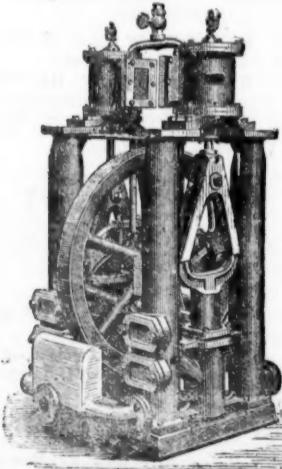
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In the boiler to the piston at the top and bottom of the stroke automatically cutting off the steam according to the requirements of the work, thereby effecting an

IMPORTANT SAVING OF FUEL,

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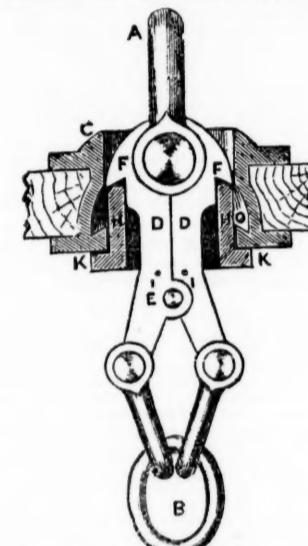
INSTANTLY SHUT THE STEAM COMPLETELY OFF

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THE MINING JOURNAL.

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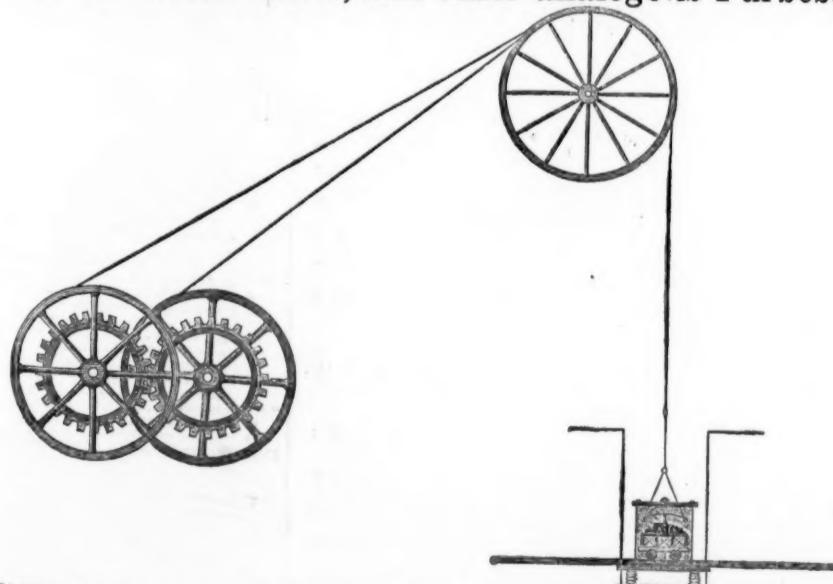
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- No. 1 MACHINE - THE HAND COAL-CUTTER, for under-cutting.
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The ADVANTAGES of this Patent is to ECONOMISE the WEAR and TEAR of the ROPES and MACHINERY used in drawing or lowering weights in Mines, or any other similar purposes.

At a mere nominal cost this patent can be applied to any or every Mine now in operation, while its application to any new plant will scarcely make any difference in time or cost.

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EXTRACTS FROM TESTIMONIALS RECEIVED:—

Mr. C. E. BAINBRIDGE, of the London Company's Mines, Middleton-in-Teesdale, by Darlington, writing on the 27th September, 1873, says—"After a full season's experience of the very complete Dressing Machine erected by you at our Colberry Mines, we are fully satisfied with our decision to adopt your patents in preference to all others. The machinery does its work as well as we can desire, and better than we anticipated. We are now getting through 70 tons of orestuff per day, of rich quality. Without your machinery we should have been at a stand still, for we cannot get hands to supply our wants elsewhere. It saves fully one-half of the old wages, and vastly more on the wages we now give, and the saving in ore is not much short of 10 per cent. You can quote from this letter as you think proper."

Mr. COULTAS DODSWORTH, of Haydon Bridge, writes, on the 15th January, 1874:—"I have just returned from the Stonecroft and Greyside Mines, where I have seen your 'Patent Ore Dressing Machinery' at work, with which I must say, I was highly pleased. It is decidedly the best machinery I have ever seen for the purpose, the results being as near perfection as possible, and I am quite sure its use in this case will be a very great saving to the company. No large mining establishment should be without your machinery, especially when labour is difficult to procure—a mere fraction of the hands being only required as against the old system, and the work altogether much better done, and a great saving of ore effected. I have heard it said that your machinery is better adapted for poor than for rich ores, but from what I have seen to-day I am quite confident it will do for any kind of ores. I beg not only to congratulate, but also to compliment, you on the great success of your 'Patent Ore Dressing Machinery.' You may use this letter as you think proper."

Mr. MONTAGUE BEALE, Managing Director of the Cagliara Mining Company (Limited), says, on May 15th, 1873:—"I have much pleasure in speaking of the great efficiency of your 'Patent Dressing Machinery,' as erected by you at our mines at Rosas, in the Island of Sardinia. You will remember it has always been considered impossible to dress, or rather separate, the minerals our ores contain by machinery, but our captain assures me he gets a constant return of 75 per cent. of lead with the greatest ease, and I know by the returns we are realising the best market price. I consider this company is much indebted to you for the success you have achieved at so small cost. If may interest you to know, from my experience in several of the British possessions, including the whole of the Australian Colonies, that my opinion is I have never seen any dressing machinery that can efficiently, and at so small a cost, dress, and separate metallic ores, however close the mechanical mixture may be, as yours. You can use this letter in any way you like."

The most satisfactory testimonials also have been received from the GREENSIDE MINE COMPANY, Westmoreland; the TALARGOCH MINING COMPANY, North Wales, and others. Copies of these may be had from Mr. GREEN.

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REMOVED from St. Day to A. JEFFERY'S, CAMBORNE.

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A. JEFFERY

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|--|----------|------------|---------------|-----------|-------------|------------|-----------|
| 15,000 Alderley Edge, c, Cheshire* | 10 0 0 | 12 6 8 | 0 8 0 | Jan. 1875 | 12 6 8 | 0 8 0 | Jan. 1875 |
| 30,000 Bampfylde, c, m., Devon* | 1 0 0 | 12 1/2 1/2 | 0 2 0 | 0 2 0 | June 1873 | 0 2 0 | 0 2 0 |
| 4,500 Elsen Caelan, s-i, Cardigan* (24 sh.) | 3 10 0 | — | 0 10 9 | — | — | — | — |
| 200 Botallack, t, c, St. Just* | 116 5 0 | 45 | 40 45 | 619 15 0 | 5 0 0 | Aug. 1875 | 1875 |
| 14,000 Bronfydd, s-i, Cardigan | 1 7 6 | — | 2 2 0 | 0 0 | Jan. 1872 | — | — |
| 4,000 Brookwood, c, Buckfastleigh | 1 16 0 | 4 1/2 | 4 1/2 4 1/2 | 3 10 6 | 0 4 0 | July 1875 | 1875 |
| 3,548 Cargoll, s-i, Nevllyn* | 5 10 0 | 1 1/2 | 1 1/2 | 4 16 3 | 0 12 6 | Oct. 1872 | 1872 |
| 6,000 Cawdwell, t, Cumberland* | 2 10 0 | — | 1 6 6 | 0 2 6 | Aug. 1873 | — | — |
| 10,000 Carr Brta, t, Illogan* | 35 0 0 | 33 | 26 38 | 308 0 0 | 1 0 0 | Feb. 1874 | 1874 |
| 6,000 Cath. & Jane, t-i, Penrhynedraeth | 5 0 0 | — | 0 7 6 | 0 7 6 | June 1873 | — | — |
| 2,450 Cook's Kitchen, t, Illogan?* | 20 19 9 | 4 1/2 | 3 1/2 4 | 11 17 0 | 0 7 6 | Jan. 1873 | 1873 |
| 10,240 Devon Gt. Consols, t, Tavistock*† | 1 0 0 | 3 | 2 1/2 3 | 116 10 0 | 0 12 0 | May 1872 | 1872 |
| 4,596 Dulcouth, t, c, Camborne | 10 14 10 | 40 | 39 41 | 106 16 8 | 0 10 0 | June 1875 | 1875 |
| 8,500 Drake Walls, t, c, Calstock | 6 0 0 | — | 0 2 0 | 0 2 0 | July 1874 | 1874 | — |
| 10,000 East Ballesford, Sancroft* | 1 0 0 | — | 0 2 11 0 | 0 5 0 | Feb. 1874 | 1874 | — |
| 6,144 East Caradon, c, St. Cleer* | 2 14 6 | 1 | 14 19 0 | 0 2 0 | Oct. 1872 | 1872 | — |
| 300 East Darren, t, Cardiganshire | 32 0 0 | — | 25 9 0 | 0 1 0 | July 1875 | 1875 | — |
| 6,400 East Pool, t, Illogan* | 0 9 9 | 13 1/2 | 13 1/2 | 13 13 0 | 0 2 6 | July 1874 | 1874 |
| 1,908 East Wheal Lovell, *t, Wendron?* | 5 19 0 | 8 | 6 1/2 7 | 20 7 6 | 0 0 0 | July 1874 | 1874 |
| 2,800 Foxdale, t, Isle of Man* | 25 0 0 | — | 80 15 0 | 0 0 0 | Sept. 1872 | 1872 | — |
| 4,0000 Glasgow Cars, c* [30,000 £1 p. 10,000 £15 p.] | 196 | 13 1/2 | 8 7 4 | 1 6 0 | Jan. 1874 | 1874 | — |
| 15,000 Great Laxey, t, Isle of Man* | 4 0 0 | 15 1/2 | 14 15 | 18 3 0 | 0 8 0 | July 1875 | 1875 |
| 25,000 Great West Van, t, Cardigan* | 2 0 0 | — | 0 2 0 | 0 2 0 | Aug. 1874 | 1874 | — |
| 5,008 Great Wheal Vor, t, c, Helston?* | 40 16 0 | — | 15 19 6 | 0 2 6 | July 1872 | 1872 | — |
| 6,400 Green Hurlth, t, Durham* | 0 6 0 | — | 1 12 0 | 0 4 0 | Oct. 1874 | 1874 | — |
| 20,000 Grogwinion, t, Cardigan* | 2 0 0 | — | 0 2 0 | 0 4 0 | Dec. 1874 | 1874 | — |
| 9,830 Gunnislake (Clitters), t, c | 5 5 0 | 13 | 1 1/2 | 0 7 3 0 | 0 1 6 | June 1875 | 1875 |
| 1024 Herodfoot, t, near Liskeard? | 8 10 0 | 3 1/2 | 3 1/2 4 | 62 5 0 | 0 10 0 | Oct. 1872 | 1872 |
| 18,000 Hington Down, c, Calstock?† (Elsh.) | 2 5 0 | 1 1/2 | 4 3 0 0 | 5 0 0 | Dec. 1872 | 1872 | — |
| 25,000 Killaloe, t, Tipperary | 1 0 0 | — | 0 8 11 0 | 0 6 0 | Mar. 1873 | 1873 | — |
| 4,000 Lislaunce, t, Cardiganshire | 18 15 0 | — | 567 10 0 | 0 1 0 | July 1875 | 1875 | — |
| 5,120 Lovell, t, Wendron | 0 10 0 | — | 0 17 6 0 | 0 1 6 | Jan. 1874 | 1874 | — |
| 11,000 Melinlaur Valley, t, Cardigan* | 3 0 0 | 3 | 2 1/2 3 | 0 7 2 0 | 0 3 7 | Jan. 1875 | 1875 |
| 9,000 Minera Mining Co., c, Wrexham* | 5 0 0 | 7 1/2 | 5 7 1/2 | 63 19 2 | 0 2 0 | May 1875 | 1875 |
| 20,000 Mining Co. of Ireland, c, c, l* | 7 0 0 | — | 0 8 0 0 | 0 3 6 | July 1872 | 1872 | — |
| 13,000 North Hendre, t, Wales | 2 10 0 | — | 1 0 0 0 | 0 2 6 | Apr. 1874 | 1874 | — |
| 3,000 North Levant, t, c, St. Just? | 12 2 0 | 3 | 2 1/2 3 | 4 12 0 | 0 12 0 | Sept. 1873 | 1873 |
| 27,855 Old Treburrett, s-i, ordinary shares | 1 0 0 | — | 0 0 9 0 | 0 0 9 | Feb. 1874 | 1874 | — |
| 9,258 Old Treburrett, s-i, (10 per cent. pref.) | 0 10 0 | — | 0 1 4 0 | 0 8 0 | July 1874 | 1874 | — |
| 9,530 Pedin-an-drea, t, Redruth? | 9 17 0 | 5 1/2 | 5 1/2 5 1/2 | 0 5 0 0 | Nov. 1871 | 1871 | — |
| 5,000 Penhalls, t, St. Agnes | 3 0 0 | 2 | 2 2 2 3 | 3 13 0 | 0 2 0 | July 1874 | 1874 |
| 4,793 Penstrithal, t, Gwennap | 2 0 0 | — | 0 2 0 0 | 1 0 0 | Nov. 1874 | 1874 | — |
| 6,000 Phoenix, t, c, Linkinhorne? | 14 13 4 | 3 1/2 | 3 1/2 3 1/2 | 39 19 10 | 0 4 0 | Nov. 1872 | 1872 |
| 17,722 Polterro, t, St. Agnes | 15 0 0 | — | 1 12 6 0 | 0 5 0 | Mar. 1875 | 1875 | — |
| 18,000 Prince Patrick, s-i, Holywell | 1 0 0 | — | 0 11 6 0 | 0 2 6 | July 1875 | 1875 | — |
| 11,200 Providence, t, Lelant? | 16 16 7 | 3 | 2 1/2 3 | 104 12 6 | 0 10 0 | Sept. 1873 | 1873 |
| 9,258 Roman Gravel, t, Salop? | 2 0 0 | — | 0 2 0 0 | 0 2 0 | Sept. 1874 | 1874 | — |
| 12,000 Roman Gravel, t, Salop? | 7 10 0 | 12 | 11 1/2 12 | 4 19 0 | 0 8 0 | May 1875 | 1875 |
| 10,000 Shelton, c, t, St. Austell | 1 0 0 | — | 0 1 0 0 | 0 1 0 | Feb. 1872 | 1872 | — |
| 512 South Caradon, c, St. Cleer | 1 5 0 | 110 | 100 110 | 720 0 0 | 1 0 0 | June 1875 | 1875 |
| 5,000 South Carn Brea, t, Illogan? | 2 6 6 | 13 1/2 | 13 1/2 15 | 0 10 0 | 0 2 6 | July 1870 | 1870 |
| 6,123 South Condurrow, t, c, Camborne?† | 6 5 6 | 4 1/2 | 4 1/2 4 1/2 | 1 7 6 0 | 0 5 0 | July 1875 | 1875 |
| 6,000 South Darren, t, Cardigan? | 3 6 6 | — | 1 1 6 0 | 0 1 6 | Nov. 1870 | 1870 | — |
| 10,000 So. Pr. Patrick, s-i, (8,000 sh. issued) | 1 0 0 | — | 0 6 0 0 | 0 2 0 | April 1874 | 1874 | — |
| 8,771 St. Just Amalgamated, t* | 3 10 0 | — | 0 9 0 0 | 0 4 0 | Nov. 1871 | 1871 | — |
| 12,000 Tankerville, t, Salop? | 6 0 0 | — | 11 1/2 11 1/2 | 3 18 0 | 0 5 0 | Aug. 1875 | 1875 |
| 6,000 Tincroft, c, t, Pool, Illogan? | 9 0 0 | 19 20 | 48 3 6 0 | 5 0 0 | May 1875 | 1875 | — |
| 15,000 Tretoil, t, Bodmin | 2 0 0 | — | 0 1 0 0 | 0 1 0 | Mar. 1874 | 1874 | — |
| 4,000 Trumpet Consols, t, Helston?† | 7 10 0 | — | 9 11 0 | 0 10 0 | Nov. 1872 | 1872 | — |
| 15,000 Van, t, Llanidloes? | 4 5 0 | 26 | 24 26 | 15 4 0 | 0 13 0 | July 1875 | 1875 |
| 8,900 W. Chilton, t, Perranzabuloe?† | 12 10 0 | 16 | 16 17 | 52 10 0 | 0 10 0 | Oct. 1872 | 1872 |
| 512 West Tolquin, t, Redruth? | 95 10 0 | 42 1/2 | 46 48 | 7 5 0 | 1 5 0 | June 1875 | 1875 |
| 2,048 West Wheal Frances, t, Illogan? | 27 3 9 | — | 6 2 6 | 12 0 0 | 0 5 0 | Oct. 1872 | 1872 |
| 512 Wheal Bassett, t, Illogan? | 5 2 6 | — | 4 1/2 5 | 63 10 0 | 0 10 0 | Aug. 1875 | 1875 |
| 2,048 Wheal Jane, t, Ken? | 2 13 10 | 3 1/2 | 2 1/2 3 | 11 5 0 | 0 5 0 | July 1875 | 1875 |
| 4,295 Wheal Kitty, t, St. Agnes | 5 4 6 | 3 1/2 | 2 1/2 3 | 11 19 0 | 0 2 6 | Dec. 1874 | 1874 |
| 896 Wheal Margaret, t, Ury Lelant? | 15 17 6 | — | 82 2 3 | 0 10 0 | May 1872 | 1872 | — |
| 80 Wheal Owles, t, St. Just? | 98 5 0 | 120 | 52 12 0 | 10 0 | Aug. 1872 | 1872 | — |
| 6,000 Wheal Prussia, t, Redruth | 2 0 0 | — | 0 1 0 0 | 0 1 0 | Dec. 1874 | 1874 | — |
| 12,000 Wheal Russell, t, Redruth | 1 0 0 | — | 0 3 3 0 | 0 6 0 | Nov. 1874 | 1874 | — |
| 10,000 Wheal Whisper, t, c, Warleggan? | 1 0 0 | — | 0 1 6 0 | 0 6 0 | May 1872 | 1872 | — |
| 25,000 Wicklow, c, su, t, Wicklow | 2 10 0 | — | 82 9 0 | 0 2 6 | Mar. 1875 | 1875 | — |
| 10,000 Wye Valley, t, Montgomery* | 3 0 0 | 3 | 2 1/2 3 | 0 3 0 0 | 0 3 0 0 | Mar. 1872 | 1872 |

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| 30,000 Almada and Trito Consol., s-i* | 1 0 0 | — | 1 1/2 | 13 1/2 2 1/2 | 2 0 |